ORDER NO. EOS-83-1049

Service Manual

Electronic Organ

SX-E22/L

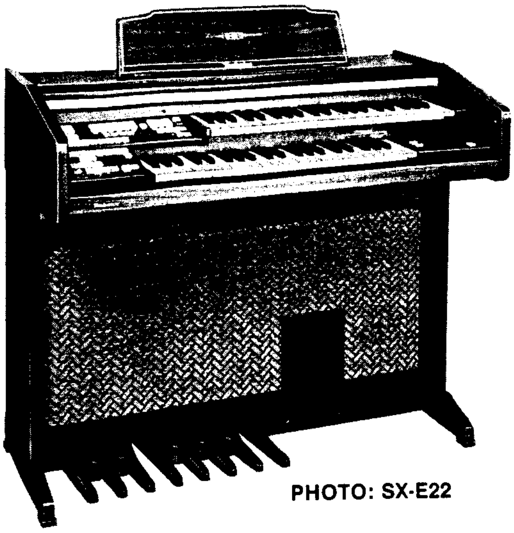


PHOTO: SX-E22

(EN), (ES), (ED), (EI), (EH), (EB), (EF), (EG), (EW), (EL), (EP), (EK) (MC), (XT), (XL), (XR), (XS), (X), (XV), (XX)

AREAS

(EN): Norway
(ES): Sweden
(ED): Denmark
(EI): Italy
(EH): Holland
(EB): Belgium
(EF): France
(EG): Garmany, Austria
(EW): Switzerland
(EL): Finland
(EP): Spain
(EK): the United Kingdom
(MC): Canada
(XT): Taiwan
(XL): New Zealand
(XR): Australia
(XS): Malaysia, Singapore, South Africa
(X): the Middle Near East, Hong Kong, the Philippines, Indonesia
(XV): Venezuela, Ecador, Panama
(XX): Peru, Chile

* **SX-E22:** This model is provided with roll-top keyboard cover.
* **SX-E22L:** This model is not provided with roll-top keyboard cover.

Specifications

Keyboards
- Upper Manual: 44 Keys $f \sim c^4$ ($3^2/_3$ Octaves)
- Lower Manual: 44 Keys $F \sim c^3$ ($3^2/_3$ Octaves)
- Pedal Keyboard: 13 Keys C~c (1 Octave)

Fullband Setting Computer (FSC)
Record, [1]~[8] (lower keyboard)

Voice Setting Computer (VSC)
Record, I, II, III, Cancel, 20 Combination Presets (lower keyboard: 1~20)

Orchestral Conductor:
- Upper: U. tab voices, U. poly presets, U. solo synthe presets
- Lower: L. tab voices, L. poly presets

Upper Tones
- Tab Voices: Flute 16′, 8′, 4′, 2′, String 8′
  Percussive Tone: 4′
  Harmonic Coupler: $2^2/_3$′
- Poly Presets:
  (Upper & Lower) Piano, Harpsichord, Vibraphone, Guitar, Trombone, Saxophone, Accordion, Clarinet, Wah Brass......Full
- Solo Synthe Presets: Trombone, Saxophone, Pan Flute, Synthe Chopper......Volume

Lower Tones
- Tab Voices: Flute 8′, 4′, String 8′......Full
- Poly Presets:
  (Upper & Lower) Piano, Harpsichord, Vibraphone, Guitar, Trombone, Saxophone, Accordion, Clarinet, Wah Brass......Full

Bass Tones: Bass 16′, 8′, Electric Bass......Volume

Effects
- Sustain: Upper ....On, Length Control
  U & L Poly Presets...On, Length Control
  Bass.....................Length Control
- Tremolo/Celeste: Celeste, Chorus/Tremolo...
  U. Tab Voices, U & L Poly Presets,
  L. Tab Voices
- Glide: Foot SW
- Techni-Chord: On, Close/Open

Automatic Rhythm
- Drum Percussion: March, Shuffle, Swing, Ballad, 8-beat, 16-beat, Disco I, Disco II, Bossanova, Rumba, Samba, Cha-Cha, Tango, Jazz Waltz, Waltz
- Rhythm Controls: Drum Percussion Volume, Tempo, Synchro, Start/Stop, Glide/Rhythm ...Foot SW.
- Fill-In & Intro: Fill-In & Intro
- Rhythmic Orchestra: On, I/II...Full

Program Chord Computer (PCC)
Record, PCC, Cancel
- Chord Composer: ⊢⊬, 𝄋⊕, ◀, DS, ▶, ⟶|, ⌒⊣, ⟼⊣, ⌒
- Auto Play Chord: Fingered, Memory, Cancel

Transpose: ✓ (transpose), Record, [G] ~ [C] ~ [F♯/G♭]

Others: Power Switch, Main Volume, Expression Pedal, Headphone Jack, Line Out (output level: 300 mV, 600 Ω)

Speakers: 30 cm×1, 6.5 cm×1

Maximum Output: 45 W

Power Requirement: 110 W AC 120/220/240 V 50/60 Hz,
AC 220 V 50/60 Hz...Europe,
AC 240 V 50/60 Hz...Great Britain,
AC 120 V 60 Hz ......North America, Taiwan

Cabinet Dimensions: E22 105.6 cm(W)×51.9 cm(D)×90.8 cm(H)
E22L 104.2 cm(W)×40.6 cm(D)×86.1 cm(H)

Net Weight (without bench): E22 54 kg (119 lbs.)
E22L 44 kg (97 lbs.)

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

CONTENTS

■ INTRODUCTION

ARRANGEMENT OF CONTROL PANEL I-2
PRINTED CIRCUIT BOARDS LOCATION I-4
KEYBOARD RANGES I-5
HOW TO ASSEMBLE THE ORGAN I-6
DISASSEMBLY INSTRUCTIONS I-7
MEASUREMENTS AND ADJUSTMENTS I-9
PRECAUTIONS FOR REPAIR I-10
REGISTRATION FOR 20 COMBINATION VSC I-12
INTRODUCTORY REMARKS REGARDING SCHEMATIC DIAGRAMS I-15

■ SCHEMATIC DIAGRAM

BLOCK DIAGRAM II-1
WIRING CONNECTION DIAGRAM II-3
MOTHER CIRCUIT BOARD (MB) II-5
SYSTEM ASSIGNER CIRCUIT DIAGRAM (SAS) II-7
SYSTEM ASSIGNER CIRCUIT BOARD (SAS) II-9
TONE GENERATOR CIRCUIT BOARD (TG) II-10
TONE GENERATOR CIRCUIT DIAGRAM (TG) II-11
ORGAN CIRCUIT DIAGRAM (ORG) II-13
ORGAN CIRCUIT BOARD (ORG) II-15
ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT BOARD (OP) II-16
ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT DIAGRAM (OP) II-17
ACCOMPANIMENT CIRCUIT DIAGRAM (ACC) II-19
ACCOMPANIMENT CIRCUIT BOARD (ACC) II-21
BASS & DRUM PERCUSSION CIRCUIT BOARD (BD) II-22
BASS & DRUM PERCUSSION CIRCUIT DIAGRAM (BD) II-23
SOLO SYNTHE PRESETS CIRCUIT DIAGRAM (SPS)... II-25
SOLO SYNTHE PRESETS CIRCUIT BOARD (SPS)...... II-27
SELECTOR & MIXING CIRCUIT BOARD (SM)............ II-28
SELECTOR & MIXING CIRCUIT DIAGRAM (SM) II-29
CELESTE & TREMOLO CIRCUIT DIAGRAM (CSM) ... II-31
CELESTE & TREMOLO CIRCUIT BOARD (CSM) II-33
CONTROL PANEL SWITCH RIGHT CIRCUIT BOARD (CPSR) II-34
CONTROL PANEL SWITCH RIGHT CIRCUIT DIAGRAM (CPSR) II-35
CONTROL PANEL SWITCH LEFT CIRCUIT DIAGRAM (CPSL) II-37
CONTROL PANEL SWITCH LEFT CIRCUIT BOARD (CPSL) II-39
JACK CIRCUIT DIAGRAM (JACK) II-41
JACK CIRCUIT BOARD (JACK) II-41
CONNECTOR CIRCUIT BOARD (CNC) II-41
NETWORK CIRCUIT (NW).................................. II-42
EXPRESSION CIRCUIT (EXP) II-42
UPPER & LOWER KEYBOARD CIRCUIT DIAGRAM (UKB & LKB) II-43
UPPER & LOWER KEYBOARD CIRCUIT BOARD (UKB & LKB) II-43
PEDAL KEYBOARD CIRCUIT DIAGRAM (PKB) II-44
PEDAL KEYBOARD CIRCUIT BOARD (PKB) II-44
AMP & POWER SUPPLY CIRCUIT DIAGRAM (AS)...... II-46
AMP & POWER SUPPLY CIRCUIT BOARD (AS) II-48
AC POWER SUPPLY CIRCUIT BOARD (ACP)............ II-48

■ EXPLODED VIEWS & REPLACEMENT PARTS LIST

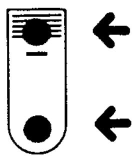
REPLACEMENT PARTS LIST (Electrical Parts) III-1
EXPLODED VIEWS OF MANUAL KEYBOARD III-5
EXPLODED VIEWS OF CABINET (SX-E22) III-6
EXPLODED VIEWS OF CABINET (SX-E22L) III-8
EXPLODED VIEWS OF PEDAL KEYBOARD III-10
REPLACEMENT PARTS LIST (Mechanism) III-11
PACKING III-14
PACKING PARTS LIST III-15

ARRANGEMENT OF CONTROL PANEL

PHOTO: SX-E22

All buttons and tablets are equipped with LEDs which light up when in operation.

Tablet



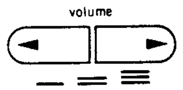
- Turns off when this part is pressed.
- The LED lights up and the tablet turns on when this part is pressed.

Controls

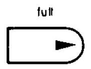
The volumes and effects on the organ are controlled by 2-or 3-stage buttons, except for rhythm tempo controls.

Volume

- Pressing the right button increases the volume and the LED on the button lights up.
- Pressing the left button decreases the volume and the LED on the button lights up.
- If you press both buttons simultaneously, the LEDs go out and the volume returns to the normal (intermediate) level.



- Pressing this button increases the volume and the LED on the button lights up.
Pressing it again causes the LED to go off and the volume to return to the normal level.



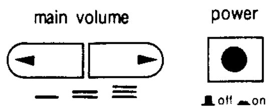
Effect

- Press the right button to increase such effects as Sustain, and the left button to decrease them. If you press both buttons simultaneously, the effects return to the intermediate levels.

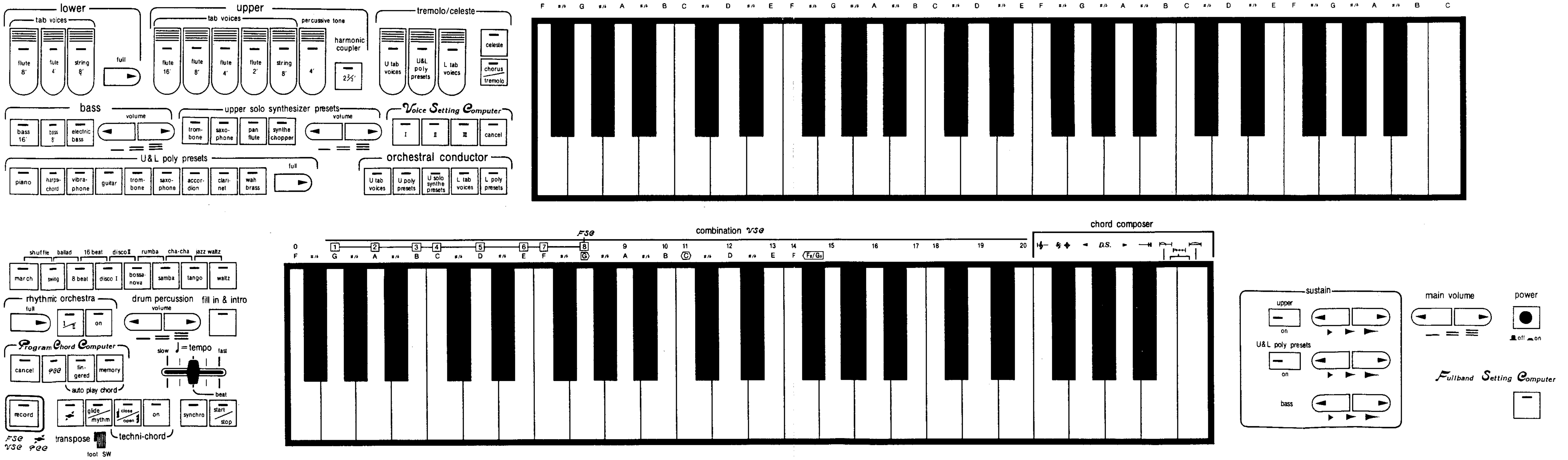
Power/Main Volume Controls

Pressing the power switch turns the organ on.

Main Volume adjusts the loudness of the entire organ.

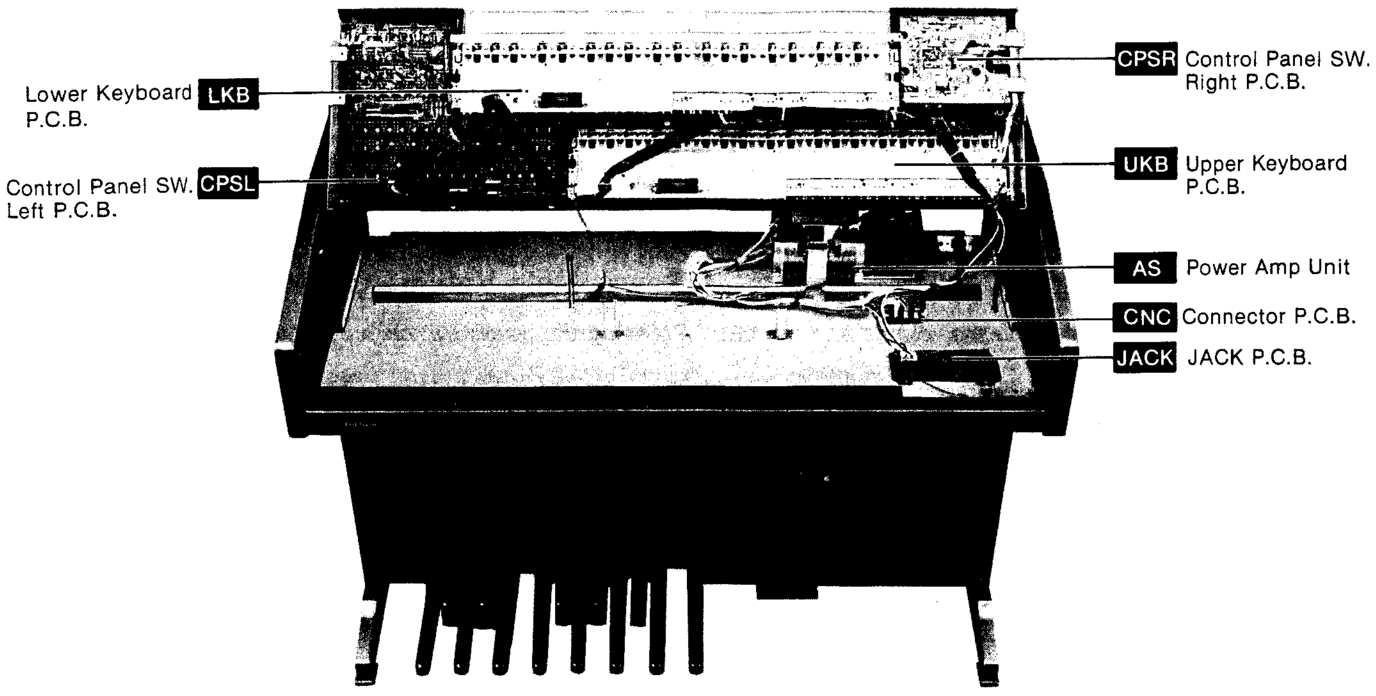

main volume
power
off on

(SX-E22/L)

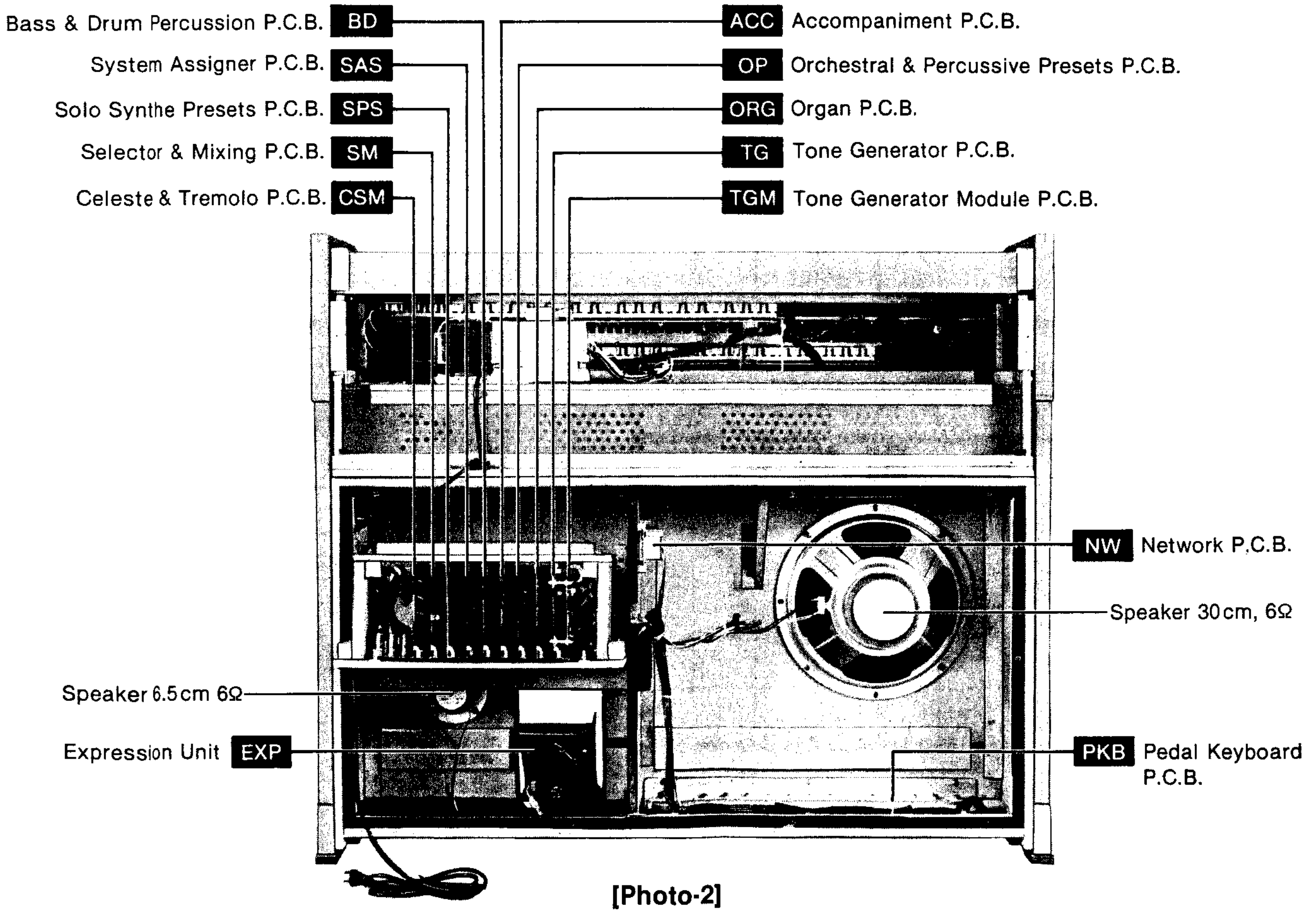

lower
tab voices
flute 8'
flute 4'
string 8'
full
upper
tab voices
percussive tone
flute 16'
flute 8'
flute 4'
flute 2'
string 8'
4'
harmonic coupler
2⅔'
tremolo/celeste
U tab voices
U&L poly presets
L tab voices
celeste
chorus
tremolo
bass
volume
bass 16'
bass 8'
electric bass
upper solo synthesizer presets
trom-bone
saxo-phone
pan flute
synthe chopper
Voice Setting Computer
I
II
III
cancel
U&L poly presets
full
piano
harpsi-chord
vibra-phone
guitar
trom-bone
saxo-phone
accor-dion
clari-net
wah brass
orchestral conductor
U tab voices
U poly presets
U solo synthe presets
L tab voices
L poly presets
F G A B C D E F G A B C D E F G A B C D E F G A B C
shuffle ballad 16beat discoII rumba cha-cha jazz waltz
march swing 8 beat disco I bossa-nova samba tango waltz
rhythmic orchestra
full
on
drum percussion
volume
fill in & intro
Program Chord Computer
cancel
PCC
lin-gered
memory
auto play chord
slow
♩=tempo
fast
beat
record
FSC
VSC
PCC
transpose
glide rhythm
close open
on
techni-chord
synchro
start stop
foot SW
FSC
combination VSC
chord composer
0 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
F G A B C D E F G A B C D E F F♯/G♭
D.S.
sustain
upper
on
U&L poly presets
on
bass
main volume
power
off on
Fullband Setting Computer

PRINTED CIRCUIT BOARDS LOCATION

PHOTO: SX-E22


Lower Keyboard P.C.B. LKB
Control Panel SW. Left P.C.B. CPSL
CPSR Control Panel SW. Right P.C.B.
UKB Upper Keyboard P.C.B.
AS Power Amp Unit
CNC Connector P.C.B.
JACK JACK P.C.B.

[Photo-1]

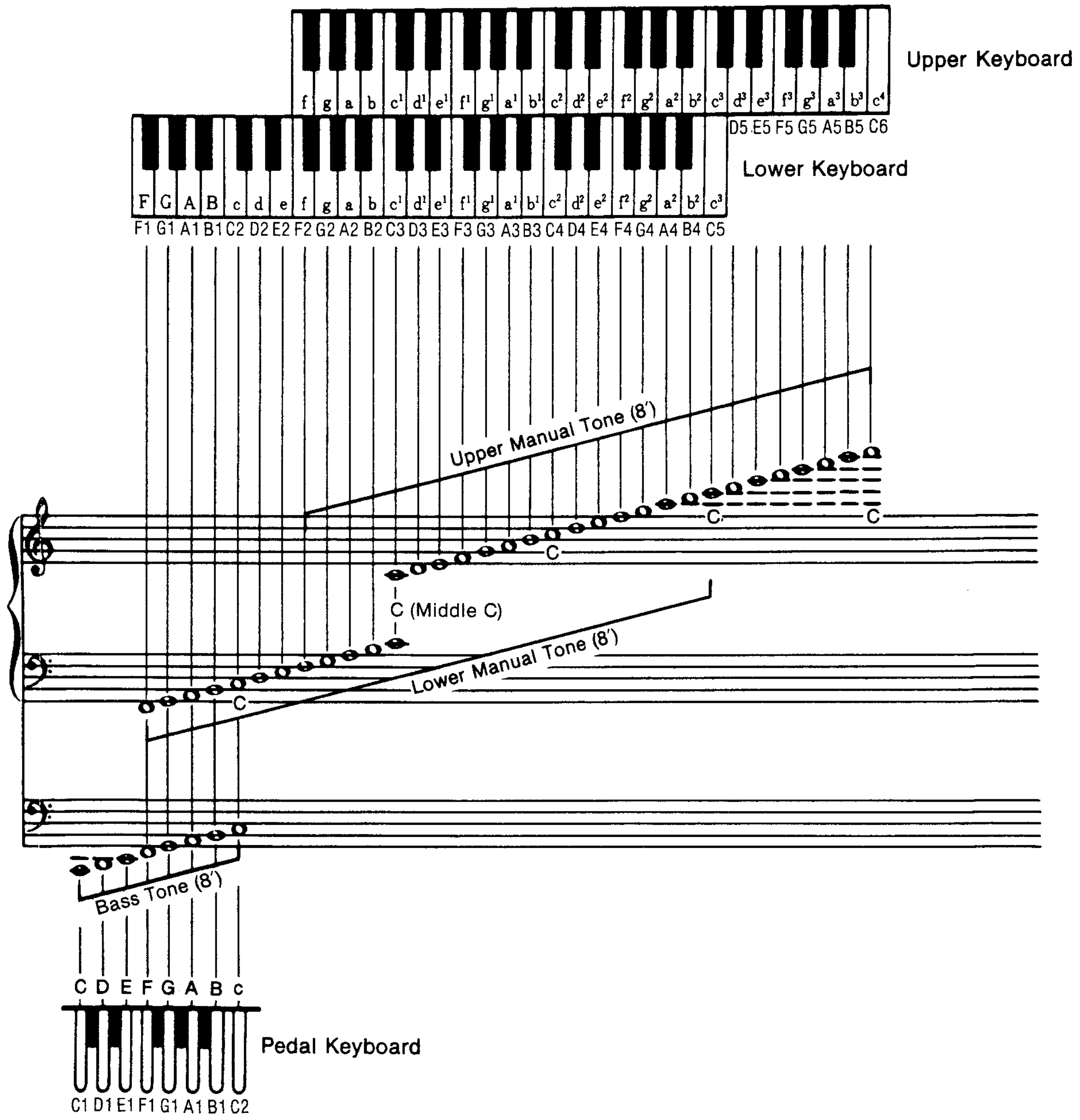

Bass & Drum Percussion P.C.B. BD
System Assigner P.C.B. SAS
Solo Synthe Presets P.C.B. SPS
Selector & Mixing P.C.B. SM
Celeste & Tremolo P.C.B. CSM
ACC Accompaniment P.C.B.
OP Orchestral & Percussive Presets P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
NW Network P.C.B.
Speaker 30cm, 6Ω
Speaker 6.5cm 6Ω
Expression Unit EXP
PKB Pedal Keyboard P.C.B.

[Photo-2]

KEYBOARD RANGES

Upper Keyboard	.........44 Keys	f to c^4 ($3^2/_3$ Octaves)
Lower Keyboard	.........44 Keys	F to c^3 ($3^2/_3$ Octaves)
Pedal Keyboard	.........13 Keys	C to c (1 Octave)

⋇ An 8-feet compass is used for each keyboard.


Upper Keyboard
f g a b c¹ d¹ e¹ f¹ g¹ a¹ b¹ c² d² e² f² g² a² b² c³ d³ e³ f³ g³ a³ b³ c⁴
D5 E5 F5 G5 A5 B5 C6
Lower Keyboard
F G A B c d e f g a b c¹ d¹ e¹ f¹ g¹ a¹ b¹ c² d² e² f² g² a² b² c³
F1 G1 A1 B1 C2 D2 E2 F2 G2 A2 B2 C3 D3 E3 F3 G3 A3 B3 C4 D4 E4 F4 G4 A4 B4 C5
Upper Manual Tone (8′)
C
C
C
C (Middle C)
Lower Manual Tone (8′)
C
Bass Tone (8′)
C D E F G A B c
Pedal Keyboard
C1 D1 E1 F1 G1 A1 B1 C2

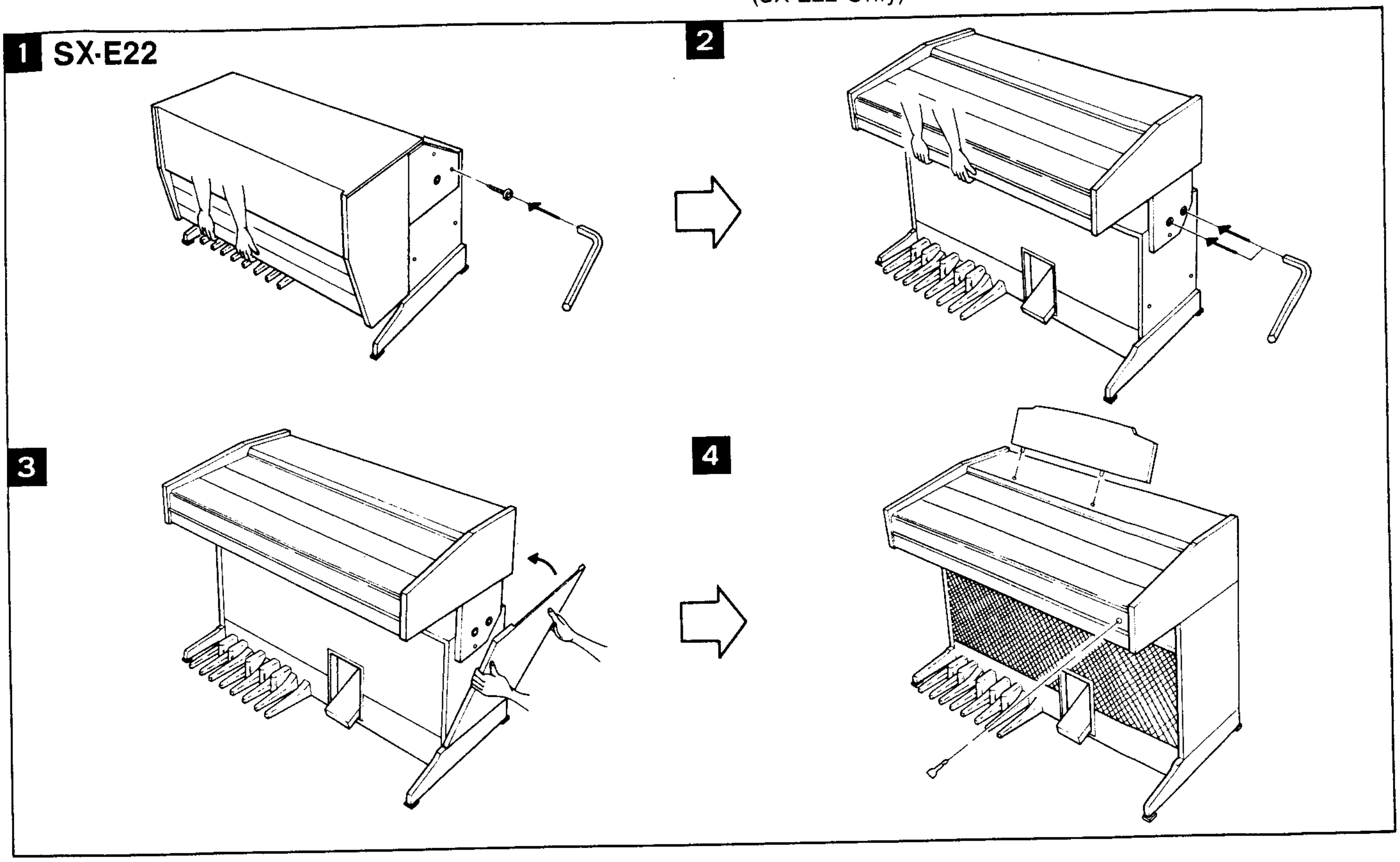
HOW TO ASSEMBLE THE ORGAN

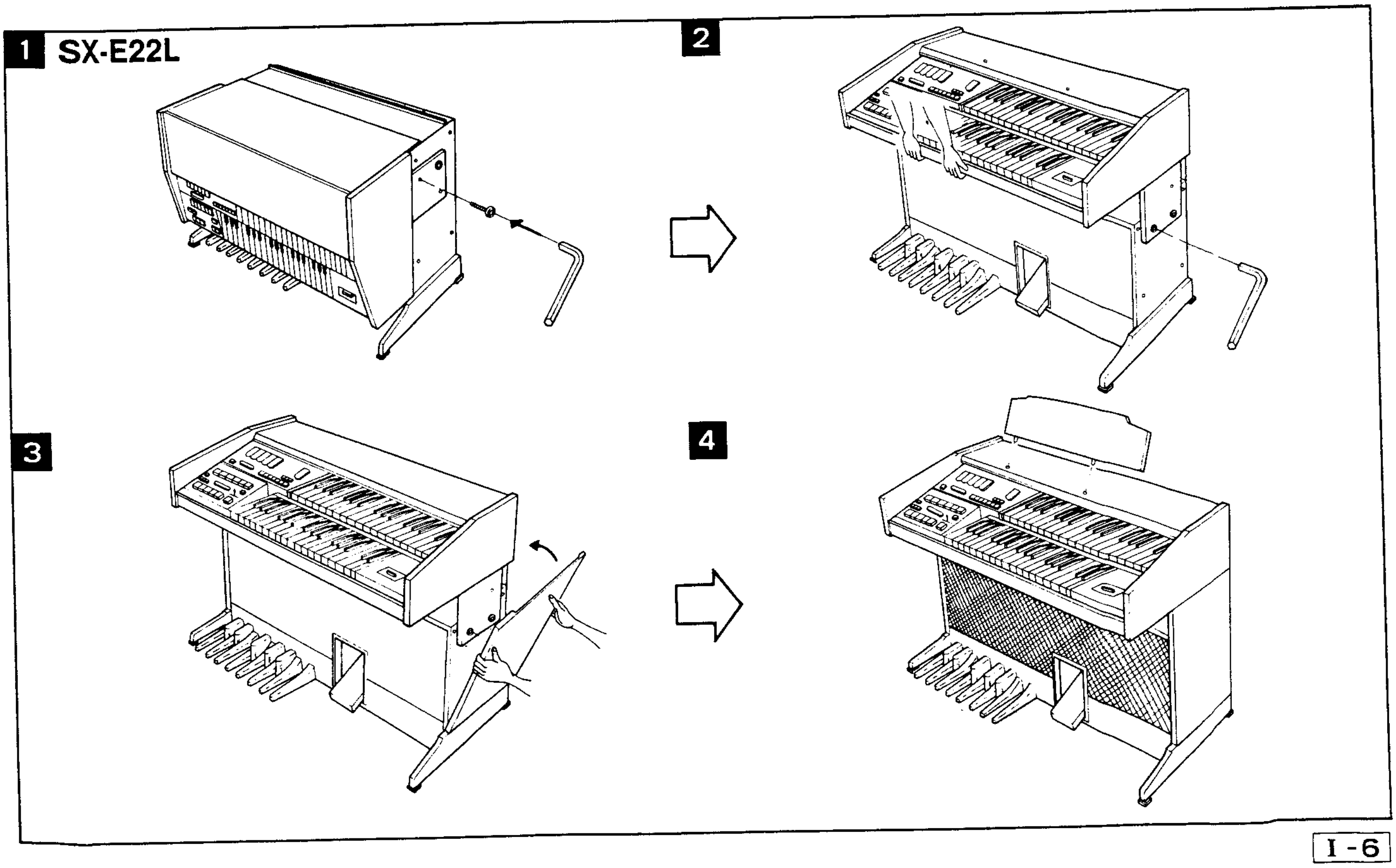
1 Remove the red screws using the supplied wrench.

2 Holding the upper cabinet section, lift it into position and tighten the red screws firmly.

3 Hold each side panels with both hands and install the side panel on the side board of cabinet.

4 Set the music rack on the top cover.
Unlock the sliding cover with the accessory key.
(SX-E22 Only)

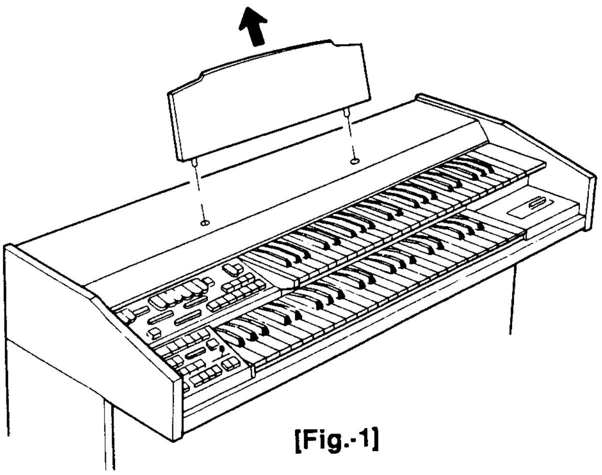




DISASSEMBLY INSTRUCTIONS

1. Music Rack

a) Music rack can be removed upward.



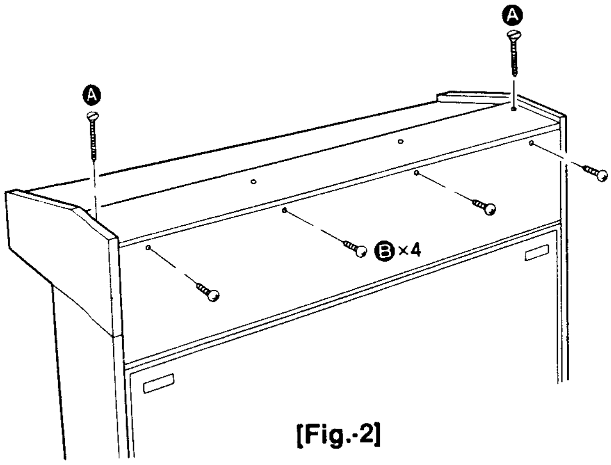
[Fig.-1]

2. Top Cover

a) Remove the 2 setscrews Ⓐ located on the right and left sides of the top cover.

b) Remove the 4 setscrews Ⓑ located on the rear panel.

c) The top cover can be removed upwards.

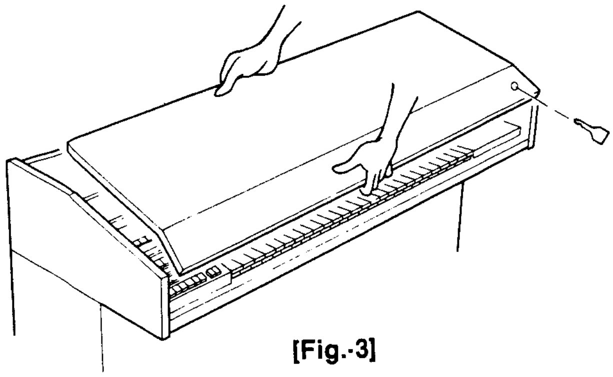


[Fig.-2]

3. Sliding Cover (only for SX-E22)

a) Unlock the sliding cover with the accessory key.

b) After removing the top cover, remove the sliding cover in its fully-closed position.



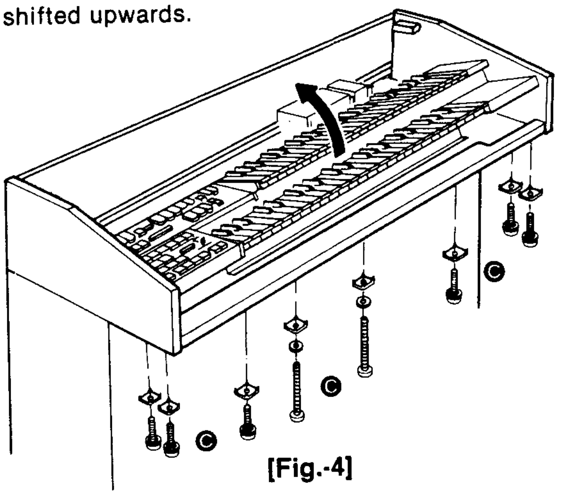
[Fig.-3]

4. Keyboard and End Cover Unit

a) Remove the top cover and sliding cover.

b) Remove the 8 setscrews Ⓒ on the bottom of the shelf board.

c) Then the keyboard and end cover unit can be shifted upwards.



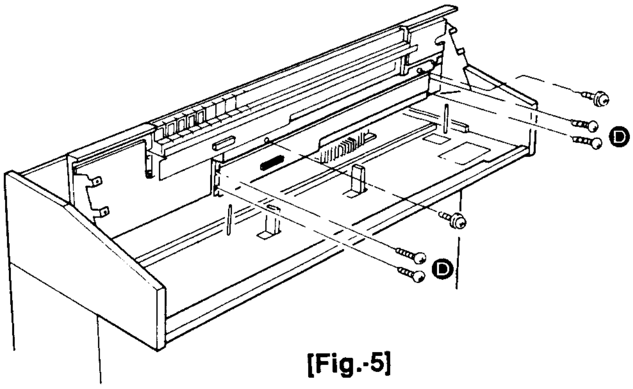
[Fig.-4]

5. Upper Keyboard

a) Open the keyboard and end cover unit according to step 4.

b) Remove the 6 setscrews Ⓓ which fasten the upper keyboard chassis.

c) Then the upper keyboard can be removed.



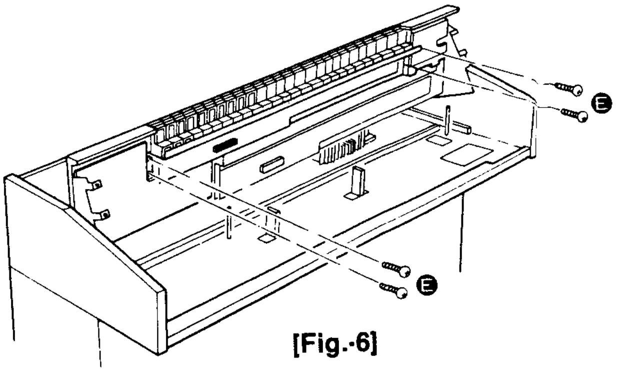
[Fig.-5]

6. Lower Keyboard

a) Open the keyboard and end cover unit according to step 4.

b) Remove the 4 setscrews Ⓔ which fasten the lower keyboard chassis.

c) Then the lower keyboard can be removed.

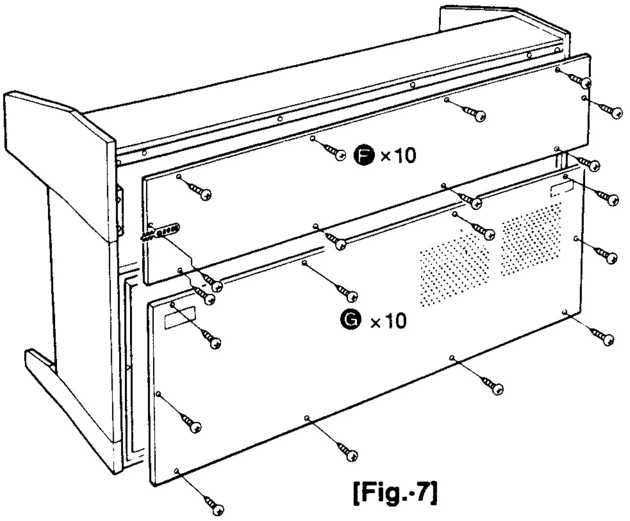


[Fig.-6]

7. Rear Panel

a) Upper Cabinet Section (only for SX-E22)
Remove the 10 setscrews Ⓕ on the rear panel.

b) Lower Cabinet Section
Remove the 10 setscrews Ⓖ on the rear panel.



[Fig.-7]

8. Printed Circuit Board Rack

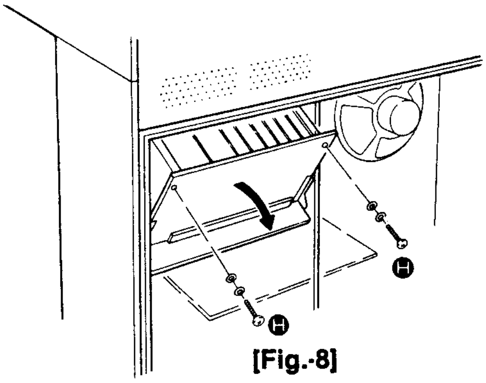
a) Remove the rear panel of the lower cabinet.

b) Remove the 2 setscrews Ⓗ which fasten the P.C.B. rack.

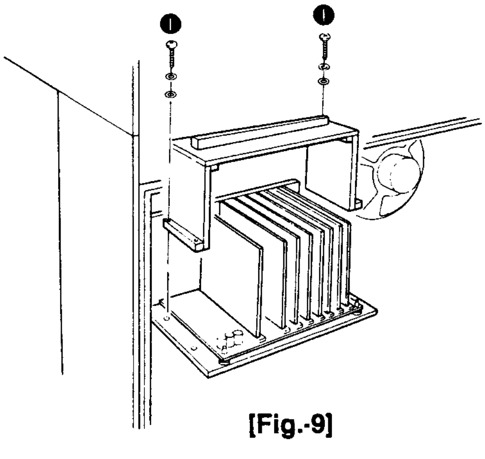
c) Pull the printed circuit board rack toward you.
It will swing out and can be removed.

d) Remove the 2 setscrews Ⓘ on both sides of the P.C.B. retainer plate.

e) Each printed circuit board can be removed from the mother board P.C.B.



[Fig.-8]



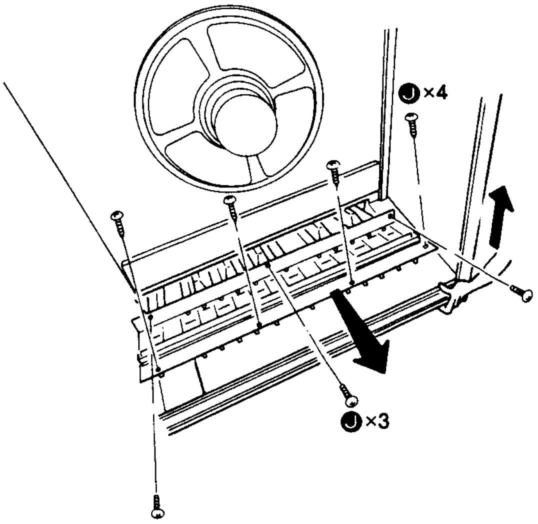
[Fig.-9]

9. Pedal Keyboard

a) Remove the rear panel of the lower cabinet.

b) Remove the 7 setscrews Ⓙ which fasten the pedal keyboard chassis.

c) Lift the cabinet body, and remove the pedal keyboard from the bottom plate of the cabinet.



[Fig.-10]

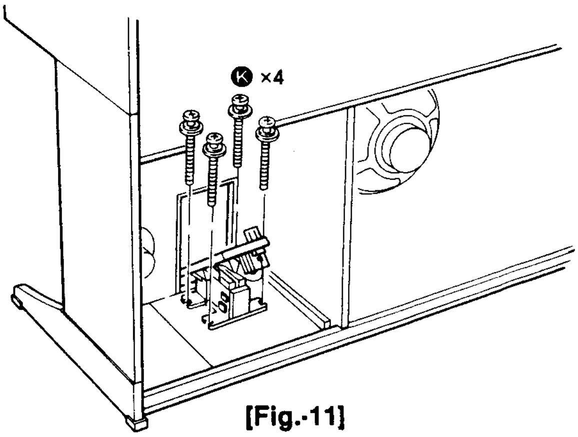
10. Expression Unit

a) Remove the rear panel of the lower cabinet.

b) Remove the 4 setscrews Ⓚ which fasten the expression unit.

c) The expression unit can be removed.

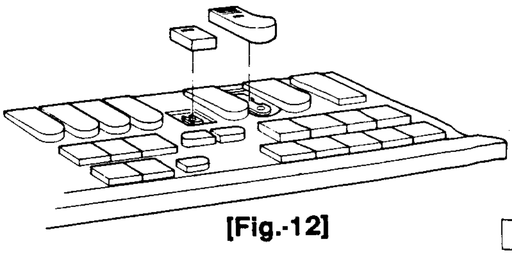
d) When replacing the expression lamp, remove the lamp retainer rubber and detach the lamp from the socket.



[Fig.-11]

11. Buttons and Knobs

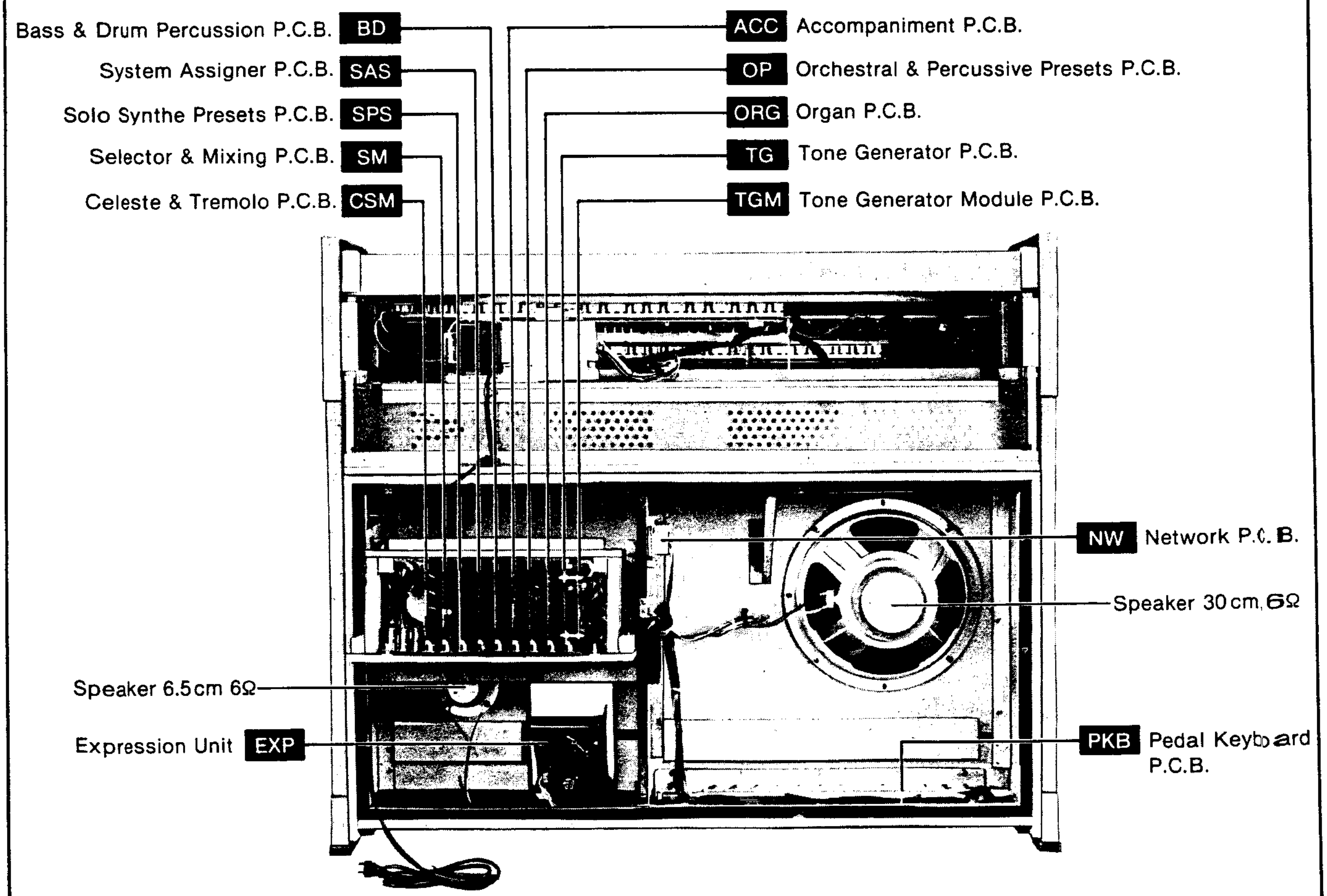
a) All buttons and knobs can be pulled out.



[Fig.-12]

MEASUREMENTS AND ADJUSTMENTS

ADJUSTMENT	SETTING	METER USED	ADJUSTMENT CIRCUIT BOARD	ADJ. POINT	CONNECT METER TO	METER READING
Tuning (tab)	The pitch control of this unit is fixed and requires no tuning. So, check the output frequency as follows.					
	orchestral conductor...u. tab voices upper voices ....flute 8′ upper keyboard ....A3 key	Frequency counter	—	—	30cm speaker	440Hz
Tuning (mono-tone)	pedal voices ....bass 8′ pedal keyboard ....A1 key	Frequency counter	—	—	30cm speaker	110Hz
Output level (manual)	orchestral conductor...u. tab voices upper voices ....flute 4′, 8′, 16′ main volume ....max. expression pedal ......max. upper keyboard C3, E3, G3	Electric voltmeter	Selector & Mixing Circuit	VR2	30cm speaker	2.5Vrms
Pedal level	pedal voices ....bass 8′ main volume ....max. expression pedal ......max. bass volume ....max. pedal keyboard ....A1 key	Electric voltmeter	Bass & Drum Percussion Circuit	VR1	30cm speaker	3.5Vrms
Expression characteristics	orchestral conductor...u. tab voices upper voices ....flute 4′, 8′, 16′ main volume ....max. expression pedal ......min~max. upper keyboard C3, E3, G3	Electric voltmeter	System Assigner Circuit	VR1	30cm speaker	35dB
		Adjust VR1 of system assigner so that the change in output is 35dB when the expression pedal is shifted from the minimum to maximum.				


Bass & Drum Percussion P.C.B. BD
System Assigner P.C.B. SAS
Solo Synthe Presets P.C.B. SPS
Selector & Mixing P.C.B. SM
Celeste & Tremolo P.C.B. CSM
ACC Accompaniment P.C.B.
OP Orchestral & Percussive Presets P.C.B.
ORG Organ P.C.B.
TG Tone Generator P.C.B.
TGM Tone Generator Module P.C.B.
NW Network P.C.B.
Speaker 30cm, 6Ω
Speaker 6.5cm 6Ω
Expression Unit EXP
PKB Pedal Keyboard P.C.B.

PRECAUTIONS FOR REPAIR

Precautions for servicing

In the products of serial No. 583B0000, IC4 (ROM) used in system assigner P.C.B. and tone generator module P.C.B. are used in pair. The product is provided with a caution label for servicing. So, use the specified parts according to the caution during servicing.

Details of pair

	Special Parts	General Parts
System assigner P.C.B.	SXPG11272Z (ROM: SVIG27128Z)	SXPG11272 (ROM: SVIG23128218)
Tone generator module P.C.B.	SXPG11262Z	SXPG11262

The ROM of system assigner P.C.B. and the tone generator module P.C.B. mentioned above are used in pair, and symbol "Z" is attached to the tail of part No.
When repairing the P.C.B., use a correct pair as in the above table or replace them with P.C.B. without "Z" at the tail of part No.

[Repair parts]

When placing an order for repair parts, be sure to specify the part No. that provide correct pairs.

■ Troubles often occur due to faulty operation of your electronic organ if you are not completely familiar with its mechanisms. Therefore, if your organ shows the following symptoms, please check the instrument before repair.

Symptom	Cause and measure
Lower keyboard on pedal keyboard keep sounding.	When fingered and memory button are ON, or PCC button is ON, while rhythm is OFF, if lower keyboard is played, then lower keyboard and pedal keyboard will keep sounding. • Please push the cancel button.
Nine or more keys of upper or lower keyboard are simultaneously depressed, only 8 keys make sound.	It is designed so that upper and lower keyboards can make sound only up to 8 keys when harmonic coupler is not provided. • Priority is given to 8 keys of higher-pitched sound.
Upper or lower keyboard makes sound only up to 4 tones.	With harmonic coupler provided, each keyboard can simultaneously sound only up to 4 tones. • Priority is given to 4 keys of higher-pitched sound.
Harmonic effect is not given.	Harmonic coupler is effective only when tab voice is individually used. For example, if tab voice is used in combination with poly presets, then harmonic effect will not be given.
In flute 2′, the highest tone (C^4 key) is lowered by 1 octave.	The highest-pitched sound (C^4 key) of flute 2′ is in the same sound range as for the key (C^3) of 1 octave lower.
Lower-pitched (19 keys) sounds of upper keyboard are different in tone from the higherpitched (25 keys) sounds.	During memory operation of voice setting computer, transpose, and full-band setting computer, the tones and effects of lower keyboard can be checked by the 19 lower-pitched sound keys of upper keyboard.

Symptom	Cause and measure
Orchestral preset sounds are not given sustain.	When sustain effect is applied to polypreset sound, only percussive preset buttons are given sustain. • Orchestral preset sounds are not given sustain.
When PCC button of program chord computer is used for chord memory operation, pressing the chord composer key makes the error sound — sharp whistle.	Data of one tune up to 74 chords can be stored in the program chord computer. The alarm is given by normal whistle at the 74th chord, and the error sound is givnen by sharp whisle at the 76th chord and over.
With synchro button depressed, rhythm does not start when accompaniment is played.	If rhythm is stopped by foot switch, synchro button will also turn OFF. • If rhythm is stopped by foot switch, synchro button must be turned ON. • During the play mode of auto play chord, synchro start is not possible with pedal keyboard.
Rhythm and fill-in patterns spontaneously change.	To make the play variegated, the bass pattern is designed to change spontaneously during drum percussion, rhythmic orchestra or auto play mode. It is also designed so that the fill-in does not continue the same pattern.
Memory operations of transpose, program chord computer, full-band setting computer, and voice setting computer are not possible.	Record button turns off making memory operation impossible unless a proper button is not depressed within 5sec. after depressing record button. • Select a proper button while indicator is blinking with record button depressed.
Data stored into voice setting computer, transpose, program chord computer, and full-band setting computer go out.	If the organ is left for more than one week with the switch tuned off or the power cord disconnected after storing the data, the stored data will go out. • To keep data stored in the memory for a long period of time, switch on the organ once a week at least for more than 10min.

REGISTRATION FOR 20 COMBINATIONS VSC

20 combination VSC

Combinations of original tones and effects are preset in this unit. You can select the desired tones by the lower keyboard keys marked with 1—20, and store them by use of buttons I, II and III of the voice setting computer. The tones mentioned below are preset in the keyboard (1—20). The combinations of the selected tones and effects are displayed by LED's on the control panel. The *-marked tones and effects are not displayed on the control panel.

Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect
1	Theater Organ	upper: tab voices	flute 16', 8', 4', 2', *1		bass 16', 8'	tremolo: U. tab L. tab sustain: upper
		lower: tab voices		flute 8', 4'		
2	Church Organ	upper: tab voices	flute 16', 8', 4', 2', *1 *slow attack		bass 16', 8'	chorus: U. tab L. tab
		lower: tab voices		flute 8', 4', *2 *slow attack		
3	Pop Organ I	upper: tab voices	flute 16', 4' harmonic coupler $2^2/_3$'		bass 8'	chorus: U. tab L. tab
		lower: tab voices		flute 8', 4'		
4	Pop Organ II	upper: tab voices	flute 16', 4' *decay percussive tone 4'		bass 16', 8'	chorus: U. tab L. tab sustain: upper flute 4'
		lower: tab voices		flute 8', 4'		
5	Rock Organ	upper: tab voices	flute 16', 8', 4', 2', *1 percussive tone 4' harmonic coupler $2^2/_3$'		bass 8'	chorus: U. tab L. tab
		lower: tab voices		flute 8', 4'		
6	Jazz Organ	upper: tab voices	flute 16' percussive tone 4', harmonic coupler *$5^1/_3$		bass 16', 8'	chorus: U. tab L. tab
		lower: tab voices		flute 8', 4'		
7	Classical Strings	upper: tab voices	flute 8', string 8' *slow attack		bass 8'	celeste: U. tab L. tab sustain: bass (long)
		lower: tab voices		flute 8', string 8' *slow attack		
8	Classical Ensemble	upper: tab voices poly presets	flute 8', 4', string 8' *slow attack harpsichord		bass 8'	celeste: U. tab L. tab
		lower: tab voices		flute 8', string 8' *slow attack		
9	Pop Ensemble <I>	upper: tab voices poly presets	flute 16', *1 *slow attack piano...full		bass 16', 8'	chorus: U. tab L. tab
		lower: tab voices		flute 8', 4' *slow attack		
10	Pop Ensemble <II>	upper: tab voices solo presets	flute 8', string 8' panflute...volume: max		bass 8'	celeste: U. tab voices U & L poly presets L. tab voices
		lower: tab voices poly presets		flute 8', string 8' harpsichord		

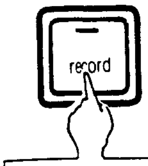
Combination VSC		Orchestral Conductor	Upper	Lower	Bass	Effect
11	Soft Brass	upper: poly presets solo presets	trombone...full trombone		bass 8′	celeste: L. tab voices
		lower: tab voices		flute 8′, 4′, string 8′		
12	Big Band Brass	upper: poly presets solo presets	saxophone...full saxophone		bass 16′, 8′	celeste: L. tab voices
		lower: tab voices		flute 8′, 4′		
13	Marching Brass	upper: poly presets solo presets	trombone...full panflute		bass 16′, 8′	celeste: L. tab voices
		lower: tab voices		flute 8′, 4′...full		
14	Synthe Brass	upper: tab voices poly presets solo presets	flute 16′, 8′ wah brass...full saxophone...volume: min		electric bass	chorus: U. tab voices L. tab voices
		lower: tab voices		flute 8′, 4′, string 8′		
15	Fusion Guitar	upper: poly presets solo presets	guitar...full synthe chopper ...volume: min		electric bass	chorus: U. tab voices L. tab voices
		lower: tab voices		flute 8′, 4′		
16	New Wave	upper: tab voices poly presets solo presets	flute 16′, percussive tone 4′, saxophone...full synthe chopper		electric bass	celeste: U. tab voices L. tab voices U & L poly presets
		lower: tab voices		flute 8′, 4′		
17	Funk Rock	upper: poly presets solo presets	wah brass...full synthe chopper ...volume: min		bass 16′, 8′	chorus: L. tab voices
		lower: tab voices		flute 8′, 4′		
18	Jazz Guitar Combo	upper: tab voices poly presets	flute 16′, percussive tone 4′ guitar...full		bass 16′, 8′	chorus: U. tab voices L. tab voices U & L poly presets
		lower: tab voices		flute 8′ 4′		
19	Mix Combo	upper: tab voices poly presets solo presets	flute 16′, 4′, percussive tone 4′ trombone...full pan flute		bass 16′, 8′	chorus: U. tab voices L. tab voices
		lower: tab voices		flute 8′, 4′		
20	Ballade Sound	upper: tab voices poly presets solo presets	flute 4′ harpsichord pan flute		bass 16′, 8′	celeste: U. tab voices L. tab voices U & L poly presets
		lower: tab voices		flute 8′		

NOTE:

The tone of Flute 1′ is set in No. 1, 2, 5 and 9 of the 20 combinations. This is because the tone of Flute 1′ is written in ROM of system assigner and the signal is sent into the voice setting computer. In the case of operation mentioned below, the tone of Flute 1′ may be given with the upper keyboard depressed even when all the tablet switches are OFF. This is not a sign of trouble, so cancel it by the method mentioned later.

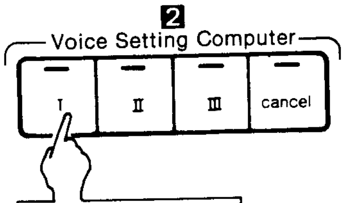
[Memory method]

1



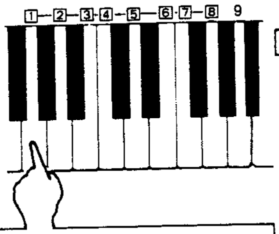
Turn ON the record button.

2


Voice Setting Computer
I
II
III
cancel

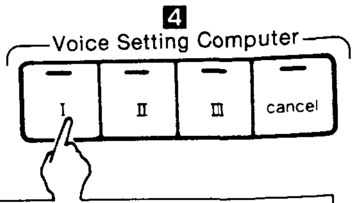
Push button I, II, or III for memory.

3



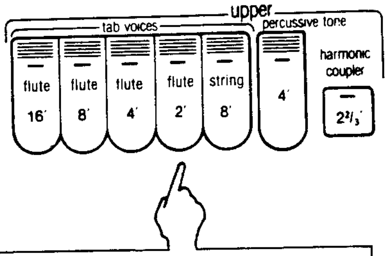
Depress a key No. 1, 2, 5 or 9 of the lower keyboard.

4


Voice Setting Computer
I
II
III
cancel

Push button I once again. Then record button turns OFF, and the tone and effect selected in step **3** are stored by button I.

5


upper
tab voices
percussive tone
flute 16′
flute 8′
flute 4′
flute 2′
string 8′
4′
harmonic coupler
2⅔′

Turn OFF all the tablet switches.

6

Tone of Flute 1′ is given with upper keyboard depressed.

After the above-mentioned steps **1**–**6**, do the following and then Flute 1′ is stored by the cancel button of VSC.

7 Push "record" button.

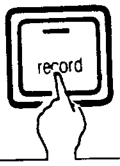
8 Push "FSC" button.

9 Push "cancel" button of VSC.

10 Tone of Flute 1′ is given with upper keyboard depressed.

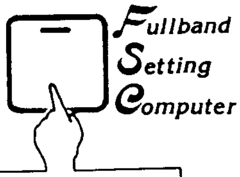
[How to cancel]

1



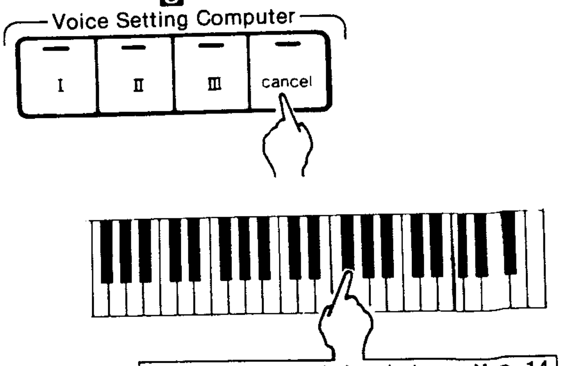
Turn ON the record button.

2


Fullband
Setting
Computer

Turn ON the FSC button.

3


Voice Setting Computer
I
II
III
cancel

Depress the black key between No. 14 and No. 15 of lower keyboard while pressing the cancel button of VSC.

In this case, the organ will be reset to the condition originally preset by the maker.

INTRODUCTORY REMARKS REGARDING SCHEMATIC DIAGRAMS

1. Important safety notice:

Components identified by ⚠ mark have special characteristics for safety.
When replacing any of these components, use only manufacturer's specified parts.

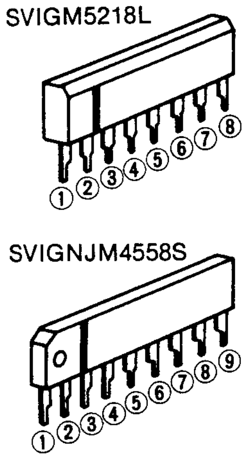
2. Signal lines

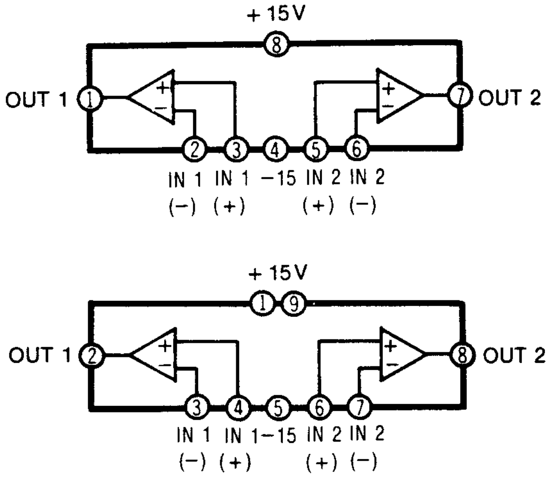
➡ Sound source signal or Tone signal
⇨ Control signal
⇛ Clock signal

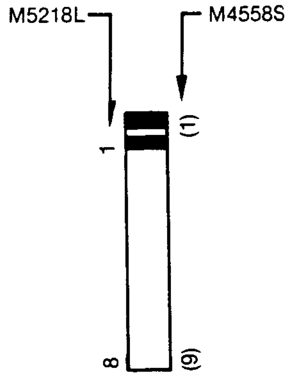
3. Terminal No. of operational amplifier

In this model, operational amplifiers with different number of terminals as shown below are used together.
Those mentioned in the circuit diagram are based upon the terminal No. of SVIGM5218L. Therefore, when checking a P.C.B. using SVIGNJM4558S, note that the terminal No. are different from those in the circuit diagram.

SHAPE **IC BLOCK DIAGRAM** **PCB SYMBOL MARK**







4. Symbolic marks

The smbolic marks for resistors and capacitors, which are used in the circuits for this organ, are as follows.

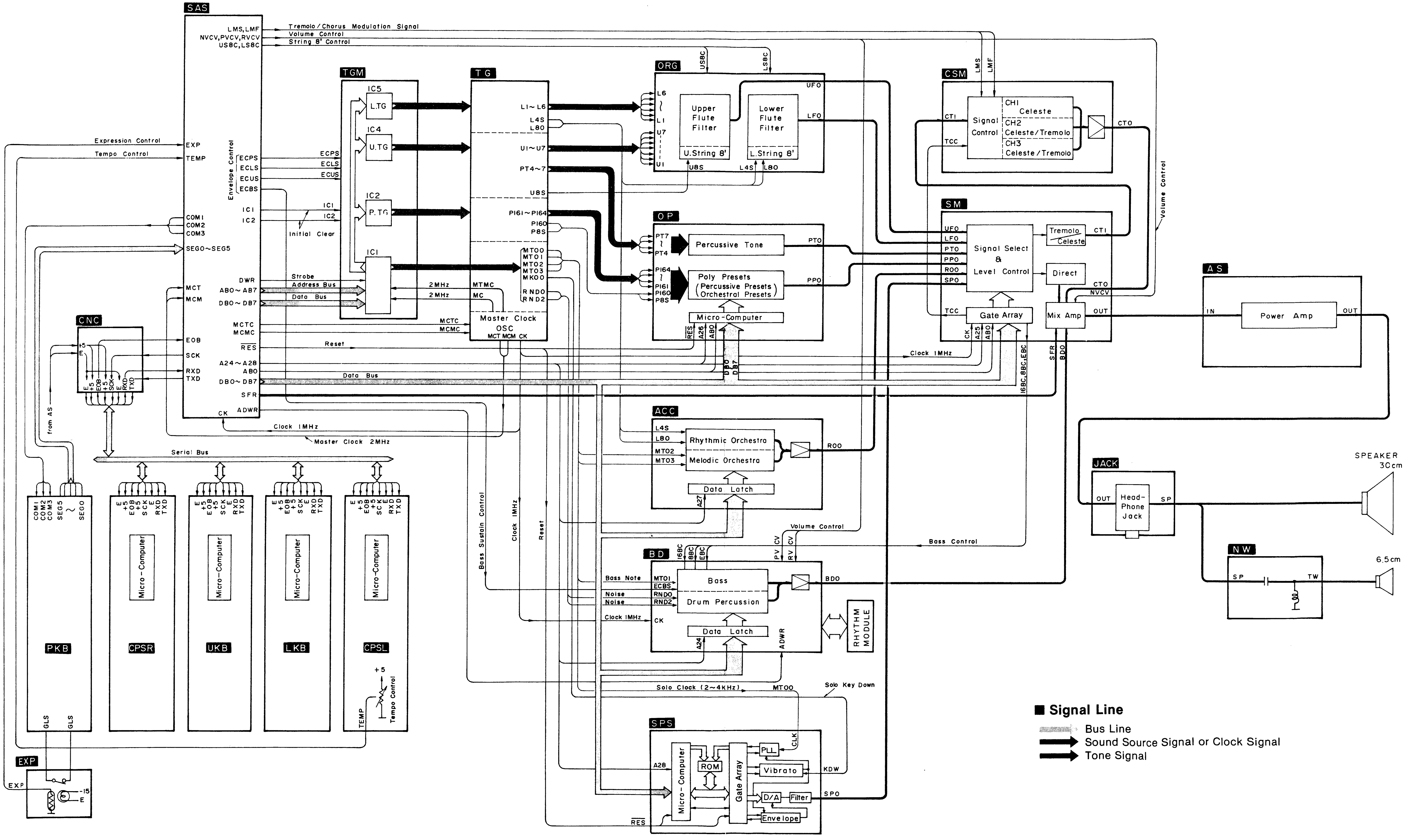
■ Resistors

(1) Resistors without symbolic mark are FIXD CARBON FILM RESISTORS.
(2) All resistors are 1/4 WATT, ±5% TOLERANCE unless otherwise designated in the schematic diagram.
(3) Resistors with 🄵 symbolic mark are Flame-Proof resistors.
(4) All resistors are in OHMS (Ω) K = 1000Ω, M = 1000kΩ.

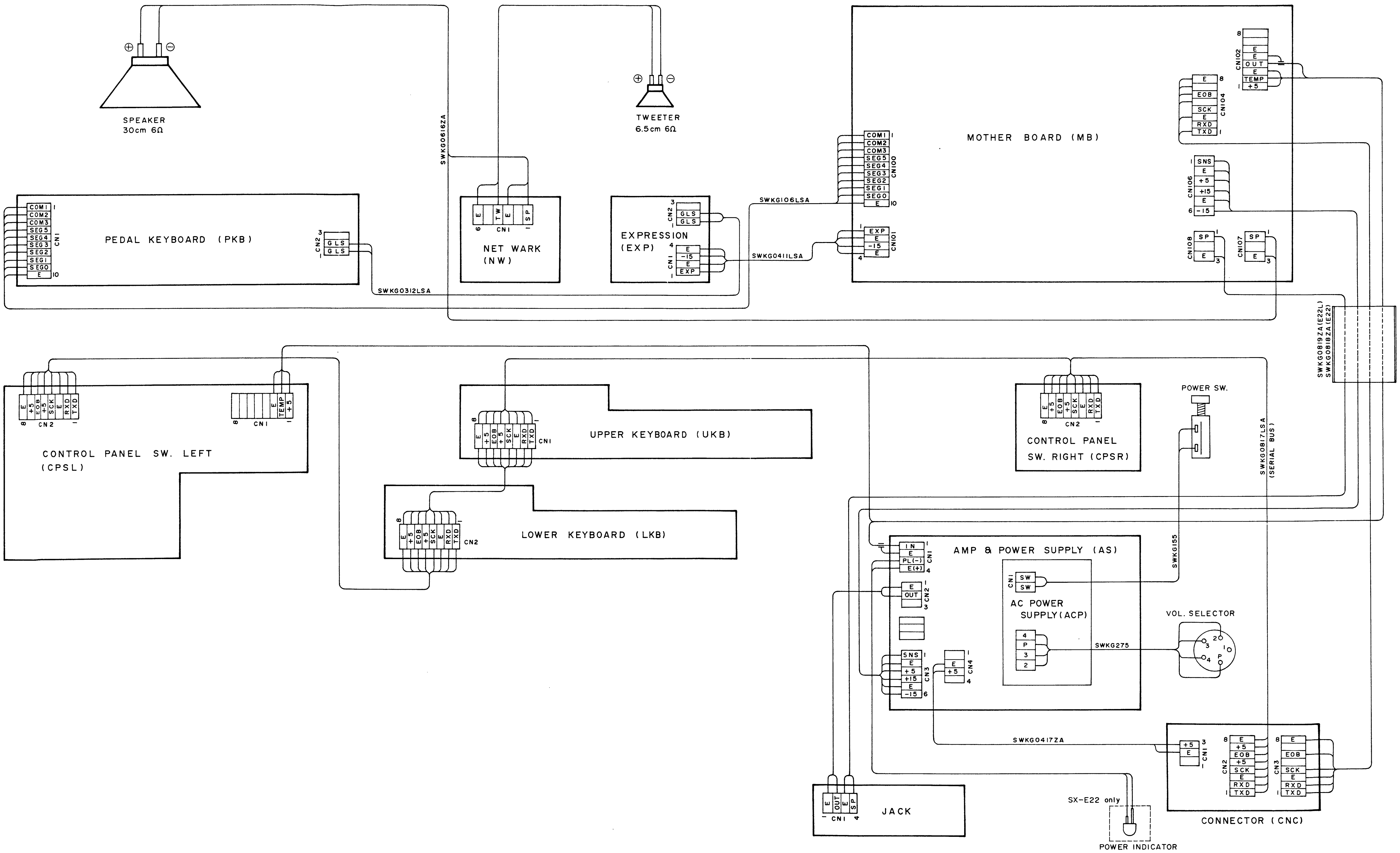
■ Capacitors

(1) Capacitors without symbolic mark are Polyester Film Capacitors (ECQM—type).
(2) Polarized capacitors without symbolic mark are Aluminum Electrolytic Capacitors. (ECEA—type).
(3) Others
  (TF) : TF capacitor (ECQV—type).
  Ⓩ : Aluminum Electrolytic Capacitor, Ⓩ series Low impedance type (ECEA—Z—type).
  (MS) : Aluminum Electrolytic Capacitor, (MS) series Low leakage current type (ECEA—M—type).
  Ⓝ : Bi-Polarized Electrolytic Capacitor (ECEA—N—type), (ECEA—Y—type).
  ○ : Ceramic Capacitor (ECC—type), (ECK—type).
(4) All capacitors are microfarads unless otherwise specified in the schematic diagram.

BLOCK DIAGRAM

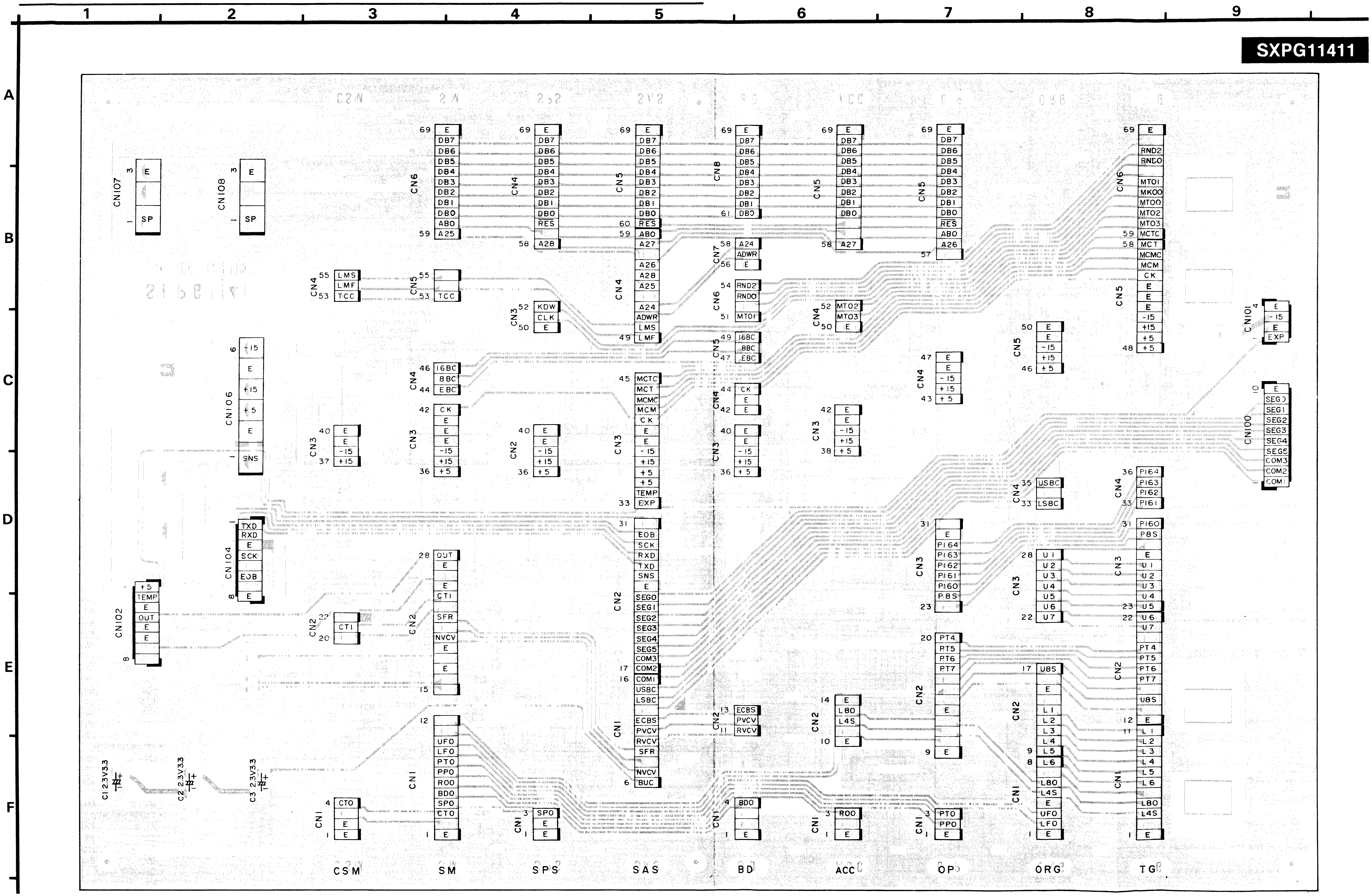

SAS
LMS,LMF
NVCV,PVCV,RVCV
US8C,LS8C
Tremolo / Chorus Modulation Signal
Volume Control
String 8' Control
Expression Control
Tempo Control
EXP
TEMP
Envelope Control
ECPS
ECLS
ECUS
ECBS
IC1
IC2
Initial Clear
COM1
COM2
COM3
SEG0~SEG5
MCT
MCM
DWR
AB0~AB7
DB0~DB7
Strobe
Address Bus
Data Bus
MCTC
MCMC
RES
Reset
EOB
SCK
RXD
TXD
A24~A28
AB0
DB0~DB7
SFR
CK
ADWR
Clock 1MHz
Master Clock 2MHz
Serial Bus
from AS
CNC
TGM
IC5
L.TG
IC4
U.TG
IC2
P.TG
IC1
2MHz
TG
L1~L6
L4S
L8O
U1~U7
PT4~7
U8S
PI61~PI64
PI60
P8S
MT00
MT01
MT02
MT03
MK00
RND0
RND2
MTMC
MC
Master Clock
OSC
MCT MCM CK
ORG
US8C
LS8C
L6
L1
U7
U1
Upper Flute Filter
Lower Flute Filter
U.String 8'
L.String 8'
UFO
LFO
U8S
L4S
L8O
OP
PT7
PT4
PI64
PI61
PI60
P8S
Percussive Tone
Poly Presets
(Percussive Presets
Orchestral Presets)
PTO
PPO
Micro-Computer
RES
A26
AB0
DB0
DB7
CSM
LMS
LMF
CTI
TCC
Signal Control
CH1 Celeste
CH2 Celeste/Tremolo
CH3 Celeste/Tremolo
CTO
Volume Control
SM
UFO
LFO
PTO
PPO
ROO
SPO
Signal Select & Level Control
Tremolo Celeste
CTI
Direct
CTO
NVCV
TCC
Gate Array
Mix Amp
OUT
CK
A25
AB0
16BC,8BC,EBC
SFR
BDO
Clock 1MHz
AS
IN
Power Amp
OUT
ACC
L4S
L8O
MT02
MT03
Rhythmic Orchestra
Melodic Orchestra
Data Latch
A27
ROO
Volume Control
Bass Control
Bass Sustain Control
Clock 1MHz
Reset
BD
16BC
8BC
EBC
PV CV
RV CV
Bass Note
MT01
ECBS
RND0
RND2
Noise
Noise
Clock 1MHz
CK
Bass
Drum Percussion
Data Latch
A24
ADWR
BDO
RHYTHM MODULE
Solo Clock (2~4KHz)
MT00
Solo Key Down
SPS
A28
Micro-Computer
ROM
Gate Array
PLL
CLK
Vibrato
KDW
D/A
Filter
SPO
Envelope
RES
JACK
OUT
Head-Phone Jack
SP
SPEAKER
30cm
6.5cm
NW
SP
TW
COM1
COM2
COM3
SEG5
SEG0
E
+5
EOB
+5
SCK
E
RXD
TXD
Micro-Computer
PKB
CPSR
UKB
LKB
CPSL
GLS
GLS
+5
TEMP
Tempo Control
EXP
EXP
-15
E
■ Signal Line
Bus Line
Sound Source Signal or Clock Signal
Tone Signal

WIRING CONNECTION DIAGRAM

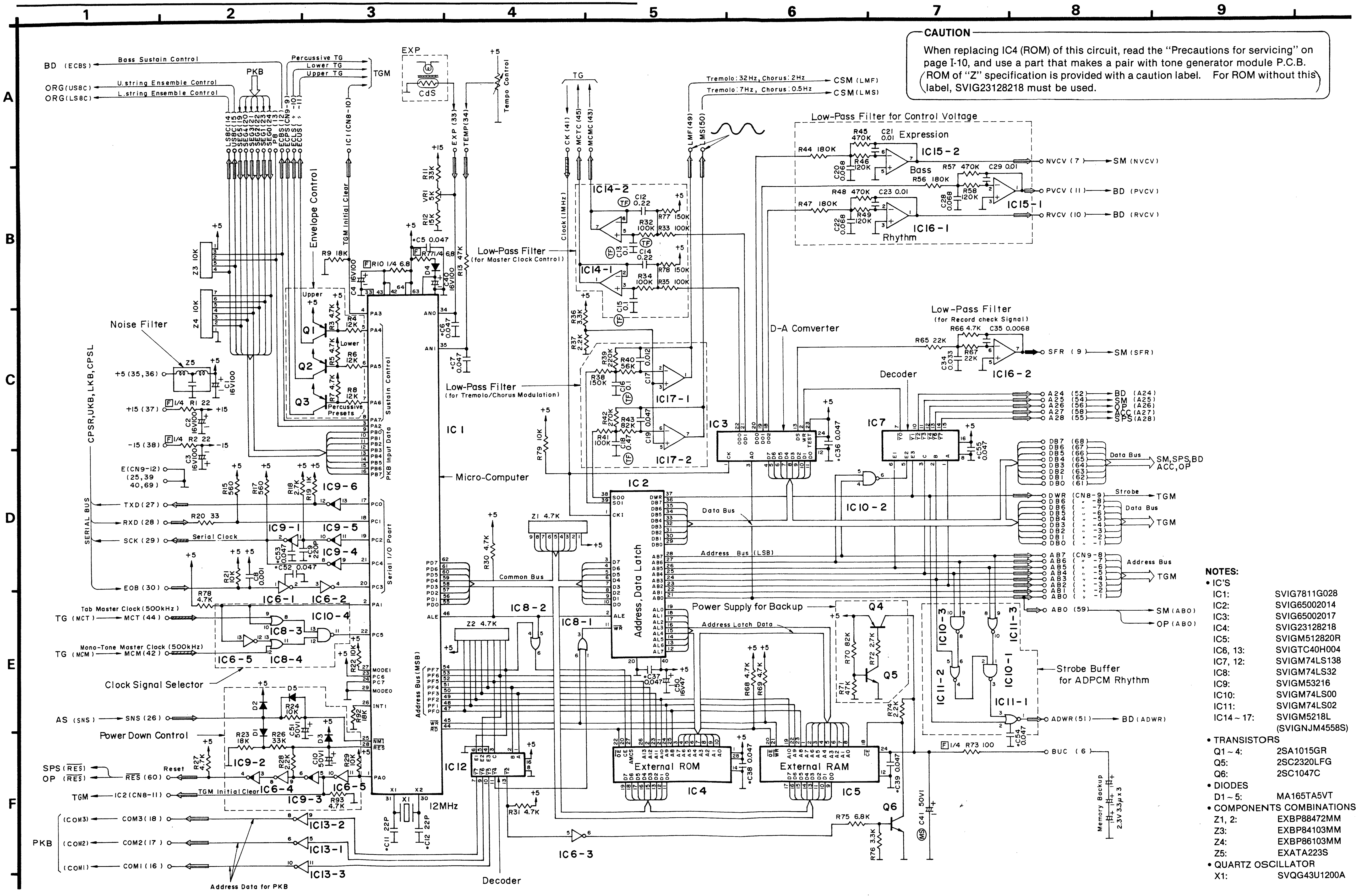

SPEAKER
30cm 6Ω
TWEETER
6.5cm 6Ω
MOTHER BOARD (MB)
CN100
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
CN101
EXP
E
-15
E
CN102
E
E
OUT
E
TEMP
+5
CN104
E
EOB
SCK
E
RXD
TXD
CN106
SNS
E
+5
+15
E
-15
CN108
SP
E
CN107
SP
E
PEDAL KEYBOARD (PKB)
CN1
CN2
GLS
GLS
NET WARK
(NW)
TW
SP
EXPRESSION
(EXP)
SWKG0616ZA
SWKG0312LSA
SWKG106LSA
SWKG0411LSA
SWKG0819ZA(E22L)
SWKG0818ZA(E22)
CONTROL PANEL SW. LEFT
(CPSL)
UPPER KEYBOARD (UKB)
LOWER KEYBOARD (LKB)
CONTROL PANEL
SW. RIGHT (CPSR)
POWER SW.
SWKG0817LSA
(SERIAL BUS)
SWKG155
AMP & POWER SUPPLY (AS)
IN
PL(-)
E(+)
CN3
CN4
AC POWER
SUPPLY(ACP)
SWKG275
VOL. SELECTOR
SWKG0417ZA
CONNECTOR (CNC)
JACK
SX-E22 only
POWER INDICATOR

MOTHER CIRCUIT BOARD (MB)

SXPG11411


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
CN107 3 E 1 SP
CN108 3 E 1 SP
CN106 6 -15 E +15 +5 E 1 SNS
CN104 TXD RXD E SCK EOB E 8
CN102 +5 TEMP E OUT E E 8
C1 2.3V3.3
C2 2.3V3.3
C3 2.3V3.3
CN4 55 LMS LMF 53 TCC
CN3 40 E E -15 37 +15
CN2 22 CTI 20
CN1 4 CTO E 1 E
CSM
CN6 69 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 AB0 59 A25
CN5 55 53 TCC
CN4 46 16BC 8BC 44 EBC
CN3 42 CK E E E -15 +15 36 +5
CN2 28 OUT E E CTI SFR NVCV E E 15
CN1 12 UFO LFO PTO PPO ROO BDO SPO CTO 1 E
SM
CN4 69 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 RES 58 A28
CN3 52 KDW CLK 50 E
CN2 40 E E -15 +15 36 +5
CN1 3 SPO E 1 E
SPS
CN5 69 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 60 RES 59 AB0 A27
CN4 A26 A28 A25 A24 ADWR LMS 49 LMF
CN3 45 MCTC MCT MCMC MCM CK E E -15 +15 +5 +5 TEMP 33 EXP
CN2 31 EOB SCK RXD TXD SNS E SEG0 SEG1 SEG2 SEG3 SEG4 SEG5 COM3 17 COM2 16 COM1 USBC LSBC
CN1 ECBS PVCV RVCV SFR NVCV 6 BUC
SAS
CN8 69 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 61 DB0
CN7 58 A24 ADWR 56 E
CN6 54 RND2 RND0 51 MTO1
CN5 16BC 8BC 47 EBC
CN4 44 CK E 42 E
CN3 40 E E -15 +15 36 +5
CN2 13 ECBS PVCV 11 RVCV
CN1 4 BDO E 1 E
BD
CN5 69 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 58 A27
CN4 52 MTO2 MTO3 50 E
CN3 42 E E -15 +15 38 +5
CN2 14 E L80 L4S 10 E
CN1 3 ROO 1 E
ACC
CN5 69 E DB7 DB6 DB5 DB4 DB3 DB2 DB1 DB0 RES AB0 A26 57
CN4 47 E E -15 +15 43 +5
CN3 31 E PI64 PI63 PI62 PI61 PI60 PBS 23
CN2 20 PT4 PT5 PT6 PT7 E 9 E
CN1 3 PTO PPO 1 E
OP
CN5 50 E E -15 +15 46 +5
CN4 35 USBC 33 LSBC
CN3 28 U1 U2 U3 U4 U5 U6 22 U7
CN2 17 UBS E L1 L2 L3 L4 9 L5 8 L6
CN1 L80 L4S E UFO LFO 1 E
ORG
CN6 69 E RND2 RND0 MTO1 MKO0 MTO0 MTO2 MTO3 59 MCTC 58 MCT MCMC MCM
CN5 CK E E E -15 +15 +5 48 +5
CN4 36 PI64 PI63 PI62 33 PI61
CN3 31 PI60 PBS E U1 U2 U3 U4 23 U5 22 U6 U7
CN2 PT4 PT5 PT6 PT7 UBS 12 E 11 L1 L2 L3 L4 L5 L6
CN1 L80 L4S 1 E
TG
CN101 4 E -15 E EXP
CN100 10 E SEG0 SEG1 SEG2 SEG3 SEG4 SEG5 COM3 COM2 COM1

SYSTEM ASSIGNER CIRCUIT DIAGRAM (SAS)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
BD (ECBS)
Bass Sustain Control
ORG(US8C)
ORG(LS8C)
U.string Ensemble Control
L.string Ensemble Control
PKB
Percussive TG
Lower TG
Upper TG
TGM
EXP
CdS
Tempo Control
TG
Tremolo: 32Hz, Chorus: 2Hz
Tremolo: 7Hz, Chorus: 0.5Hz
CSM (LMF)
CSM (LMS)
Low-Pass Filter for Control Voltage
Expression
Bass
Rhythm
IC15-2
IC15-1
IC16-1
NVCV (7) → SM (NVCV)
PVCV (11) → BD (PVCV)
RVCV (10) → BD (RVCV)
Envelope Control
TGM Initial Clear
Clock (1MHz)
IC14-2
IC14-1
Low-Pass Filter (for Master Clock Control)
Noise Filter
Upper
Lower
Percussive Presets
Q1
Q2
Q3
Sustain Control
PKB Input Data
IC1
Micro-Computer
Low-Pass Filter (for Tremolo/Chorus Modulation)
IC17-1
IC17-2
D-A Comverter
Low-Pass Filter (for Record check Signal)
IC16-2
SFR (9) → SM (SFR)
Decoder
IC3
IC7
A24 (52) → BD (A24)
A25 (54) → SM (A25)
A26 (56) → OP (A26)
A27 (58) → ACC (A27)
A28 (55) → SPS (A28)
Data Bus
SM, SPS, BD ACC, OP
CPSR, UKB, LKB, CPSL
+5 (35, 36)
+15 (37)
-15 (38)
E (CN9-12) (25, 39 40, 69)
SERIAL BUS
TXD (27)
RXD (28)
SCK (29)
Serial Clock
EOB (30)
Serial I/O Poart
IC9-6
IC9-1
IC9-5
IC9-4
IC6-1
IC6-2
IC2
Address, Data Latch
IC10-2
DWR (CN8-9) Strobe → TGM
Data Bus → TGM
Address Bus → TGM
Address Bus (LSB)
Common Bus
Power Supply for Backup
Address Latch Data
Q4
Q5
ABO (59) → SM (ABO)
→ OP (ABO)
Tab Master Clock (500kHz)
TG (MCT) — MCT (44)
Mono-Tone Master Clock (500kHz)
TG (MCM) — MCM (42)
IC10-4
IC8-3
IC6-5
IC8-4
IC8-2
IC8-1
Clock Signal Selector
Strobe Buffer for ADPCM Rhythm
IC10-3
IC11-3
IC11-2
IC10-1
IC11-1
ADWR (51) → BD (ADWR)
AS (SNS) → SNS (26)
Power Down Control
IC9-2
SPS (RES)
OP (RES)
Reset
RES (60)
IC6-4
IC9-3
IC6-5
TGM ← IC2 (CN8-11)
TGM Initial Clear
Address Bus (MSB)
IC12
X1
12MHz
External ROM
External RAM
IC4
IC5
BUC (6)
Memory Backup
Q6
IC6-3
Decoder
PKB
(COM3) ← COM3 (18)
(COM2) ← COM2 (17)
(COM1) ← COM1 (16)
IC13-2
IC13-1
IC13-3
Address Data for PKB

CAUTION

When replacing IC4 (ROM) of this circuit, read the "Precautions for servicing" on page I-10, and use a part that makes a pair with tone generator module P.C.B. (ROM of "Z" specification is provided with a caution label. For ROM without this label, SVIG23128218 must be used.)

NOTES:

- IC'S

IC1:	SVIG7811G028
IC2:	SVIG65002014
IC3:	SVIG65002017
IC4:	SVIG23128218
IC5:	SVIGM512820R
IC6, 13:	SVIGTC40H004
IC7, 12:	SVIGM74LS138
IC8:	SVIGM74LS32
IC9:	SVIGM53216
IC10:	SVIGM74LS00
IC11:	SVIGM74LS02
IC14 ~ 17:	SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS

Q1 ~ 4:	2SA1015GR
Q5:	2SC2320LFG
Q6:	2SC1047C

- DIODES

D1 ~ 5:	MA165TA5VT

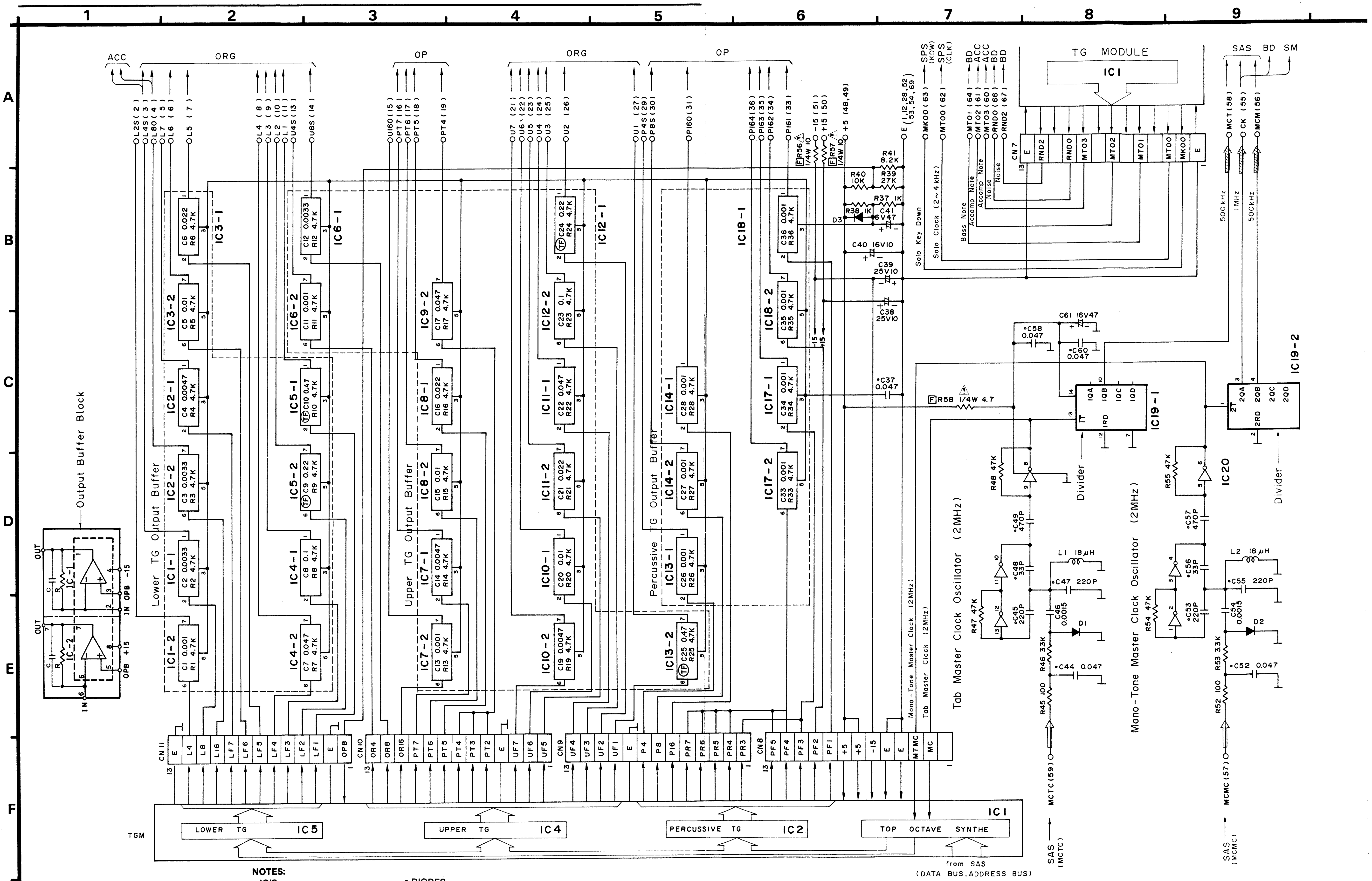
- COMPONENTS COMBINATIONS

Z1, 2:	EXBP88472MM
Z3:	EXBP84103MM
Z4:	EXBP86103MM
Z5:	EXATA223S

- QUARTZ OSCILLATOR

X1:	SVQG43U1200A

TONE GENERATOR CIRCUIT DIAGRAM (TG)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
ACC
ORG
OP
ORG
OP
L2S(2)
L4S(3)
L8O(4)
L7(5)
L6(6)
L5(7)
L4(8)
L3(9)
L2(10)
L1(11)
U4S(13)
U8S(14)
U16O(15)
PT7(16)
PT6(17)
PT5(18)
PT4(19)
U7(21)
U6(22)
U5(23)
U4(24)
U3(25)
U2(26)
U1(27)
P4S(29)
P8S(30)
P16O(31)
P164(36)
P163(35)
P162(34)
P161(33)
-15(51)
+15(50)
+5(48,49)
E(1,12,28,52)(53,54,69)
SPS (KDW)
SPS (CLK)
MKOO(63)
MTOO(62)
Solo Key Down
Solo Clock (2~4kHz)
BD
ACC
ACC
BD
BD
MTO1(64)
MTO2(61)
MTO3(60)
RNDO(66)
RND2(67)
Bass Note
Accomp Note
Accomp Note
Noise
Noise
TG MODULE
IC1
CN7
SAS
BD
SM
MCT(58)
CK(55)
MCM(56)
500kHz
1MHz
500kHz
IC3-1
IC3-2
IC2-1
IC2-2
IC1-1
IC1-2
IC6-1
IC6-2
IC5-1
IC5-2
IC4-1
IC4-2
IC9-2
IC8-1
IC8-2
IC7-1
IC7-2
IC12-1
IC12-2
IC11-1
IC11-2
IC10-1
IC10-2
IC14-1
IC14-2
IC13-1
IC13-2
IC18-1
IC18-2
IC17-1
IC17-2
C6 0.022 R6 4.7K
C5 0.01 R5 4.7K
C4 0.0047 R4 4.7K
C3 0.0033 R3 4.7K
C2 0.0033 R2 4.7K
C1 0.001 R1 4.7K
C12 0.0033 R12 4.7K
C11 0.001 R11 4.7K
C10 0.47 R10 4.7K
C9 0.22 R9 4.7K
C8 0.1 R8 4.7K
C7 0.047 R7 4.7K
C17 0.047 R17 4.7K
C16 0.022 R16 4.7K
C15 0.01 R15 4.7K
C14 0.0047 R14 4.7K
C13 0.001 R13 4.7K
C24 0.22 R24 4.7K
C23 0.1 R23 4.7K
C22 0.047 R22 4.7K
C21 0.022 R21 4.7K
C20 0.01 R20 4.7K
C19 0.0047 R19 4.7K
C28 0.001 R28 4.7K
C27 0.001 R27 4.7K
C26 0.001 R26 4.7K
C25 0.47 R25 4.7K
C36 0.001 R36 4.7K
C35 0.001 R35 4.7K
C34 0.001 R34 4.7K
C33 0.001 R33 4.7K
TF
Lower TG Output Buffer
Upper TG Output Buffer
Percussive TG Output Buffer
Output Buffer Block
OUT
IN
IC-1
IC-2
OPB -15
IN OPB
OPB +15
C
R
F R56 1/4W 10
F R57 1/4W 10
R41 8.2K
R40 10K
R39 27K
R37 1K
R38 1K
C41 6V47
D3
C40 16V10
C39 25V10
C38 25V10
C37 0.047
F R58 1/4W 4.7
C58 0.047
C61 16V47
C60 0.047
IC19-1
IC19-2
1Q A
1Q B
1Q C
1Q D
1T
1RD
2T
2Q A
2Q B
2Q C
2Q D
2RD
Divider
Divider
IC20
R48 47K
R55 47K
C49 470P
C57 470P
C48 33P
C56 33P
C45 220P
C53 220P
R47 47K
R54 47K
L1 18μH
L2 18μH
C47 220P
C55 220P
C46 0.0015
C54 0.0015
D1
D2
R46 3.3K
R53 3.3K
C44 0.047
C52 0.047
R45 100
R52 100
Tab Master Clock Oscillator (2MHz)
Mono-Tone Master Clock Oscillator (2MHz)
Mono-Tone Master Clock (2MHz)
Tab Master Clock (2MHz)
MCTC(59)
MCMC(57)
SAS (MCTC)
SAS (MCMC)
CN11
E
L4
L8
L16
LF7
LF6
LF5
LF4
LF3
LF2
LF1
E
OPB
CN10
OR4
OR8
OR16
PT7
PT6
PT5
PT4
PT3
PT2
E
UF7
UF6
UF5
CN9
UF4
UF3
UF2
UF1
E
P4
P8
P16
PR7
PR6
PR5
PR4
PR3
CN8
PF5
PF4
PF3
PF2
PF1
+5
+5
-15
E
E
MTMC
MC
TGM
IC1
LOWER TG IC5
UPPER TG IC4
PERCUSSIVE TG IC2
TOP OCTAVE SYNTHE
from SAS (DATA BUS, ADDRESS BUS)

NOTES:

- IC'S

IC1 ~ 14, 17, 18:	SVIGM5218L (SVIGNJM4558S)
IC19:	SVIGTC40H393
IC20:	SVIGTC40H004

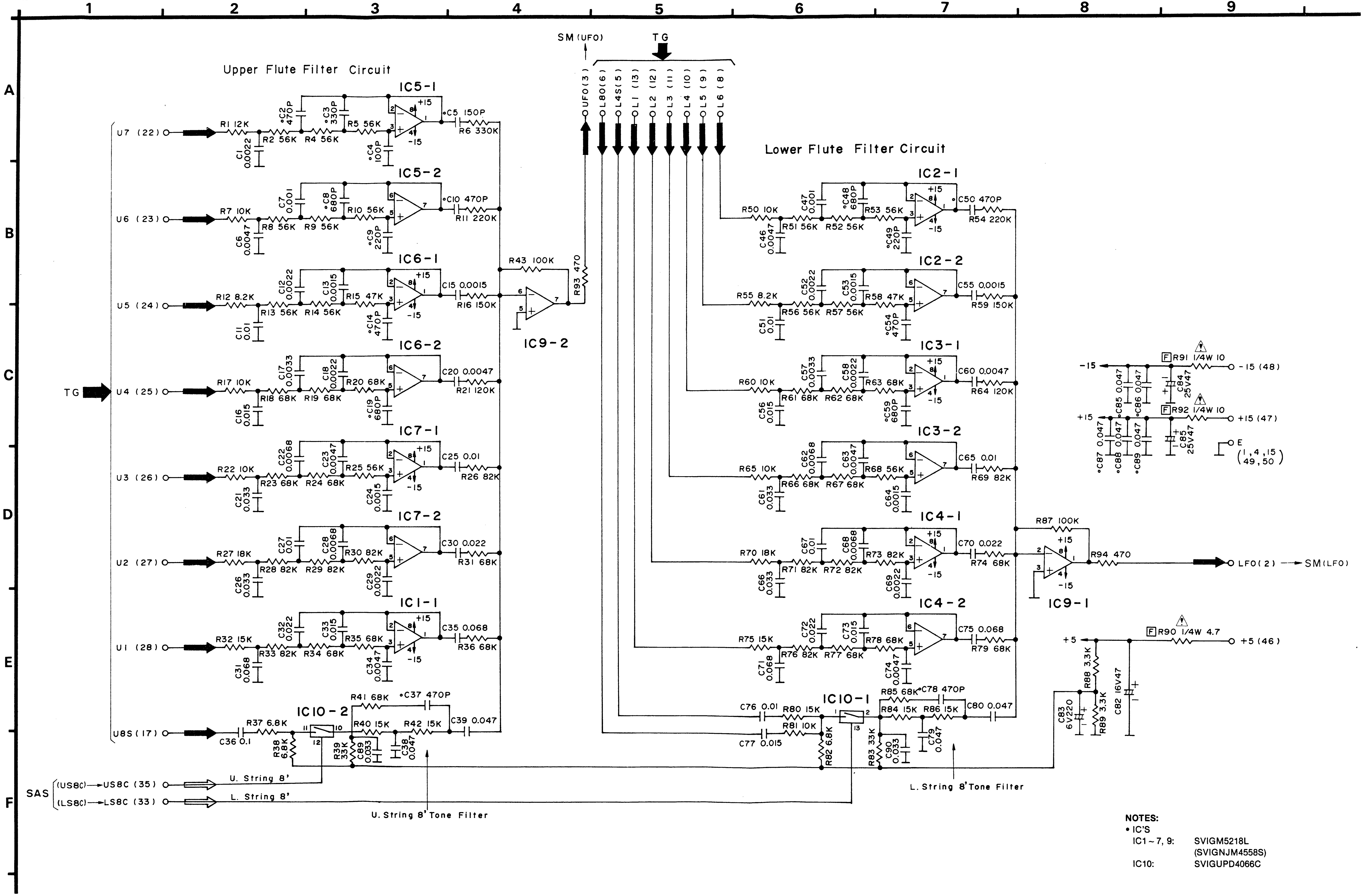
- DIODES

D1, 2:	MA165TA5VT
D3:	SVDGSM1A02LF

- COILS

L1, 2:	ELQS180KB

ORGAN CIRCUIT DIAGRAM (ORG)

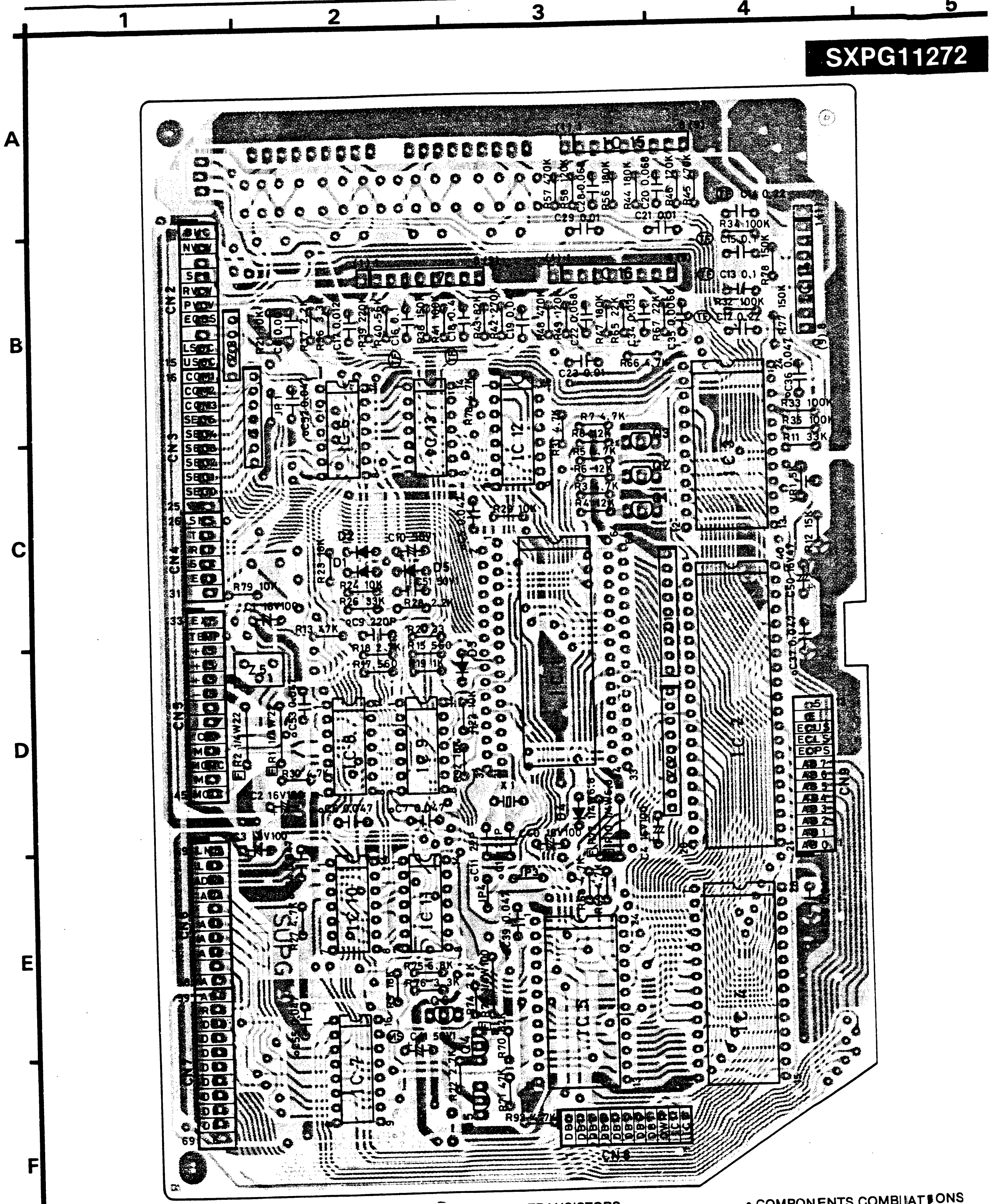

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Upper Flute Filter Circuit
Lower Flute Filter Circuit
SM (UFO)
TG
UFO (3)
L80 (6)
L4S (5)
L1 (13)
L2 (12)
L3 (11)
L4 (10)
L5 (9)
L6 (8)
U7 (22)
U6 (23)
U5 (24)
U4 (25)
U3 (26)
U2 (27)
U1 (28)
U8S (17)
IC5-1
IC5-2
IC6-1
IC6-2
IC7-1
IC7-2
IC1-1
IC10-2
IC9-2
IC2-1
IC2-2
IC3-1
IC3-2
IC4-1
IC4-2
IC10-1
IC9-1
R43 100K
R93 470
R87 100K
R94 470
LFO (2) → SM (LFO)
SAS
(US8C) → US8C (35)
(LS8C) → LS8C (33)
U. String 8'
L. String 8'
U. String 8' Tone Filter
L. String 8' Tone Filter
-15
R91 1/4W 10
-15 (48)
+15
R92 1/4W 10
+15 (47)
E (1, 4, 15, 49, 50)
+5
R90 1/4W 4.7
+5 (46)
C84 25V47
C85 25V47
C82 16V47
C83 6V220
R88 3.3K
R89 3.3K

NOTES:
- IC'S

IC1 ~ 7, 9: SVIGM5218L (SVIGNJM4558S)

IC10: SVIGUPD4066C

SYSTEM ASSIGNER CIRCUIT BOARD (SAS)


1
2
3
4
5
A
B
C
D
E
F
SXPG11272
CN2
CN3
CN4
CN5
CN6
CN7
CN8
CN9
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC11
IC12
IC13
IC14
IC15
IC16
IC17
Z5
X1
D1
D2
D5
Q2
Q3
ECUS
ECLS
ECPS
SEQ
COM
EXT
TEMP
SXPG

NOTES:

- IC'S

IC1:	SVIG7811G028
IC2:	SVIG65002014
IC3:	SVIG65002017
IC4:	SVIG23128218
IC5:	SVIGM512820R
IC6, 13:	SVIGTC40H004
IC7, 12:	SVIGM74LS138
IC8:	SVIGM74LS32
IC9:	SVIGM53216
IC10:	SVIGM74LS00
IC11:	SVIGM74LS02
IC14 ~ 17:	SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS

Q1 ~ 4:	2SA1015GR
Q5:	2SC2320LFG
Q6:	2SC1047C

- DIODES

D1 ~ 5:	MA165TA5VT

- COMPONENTS COMBINATIONS

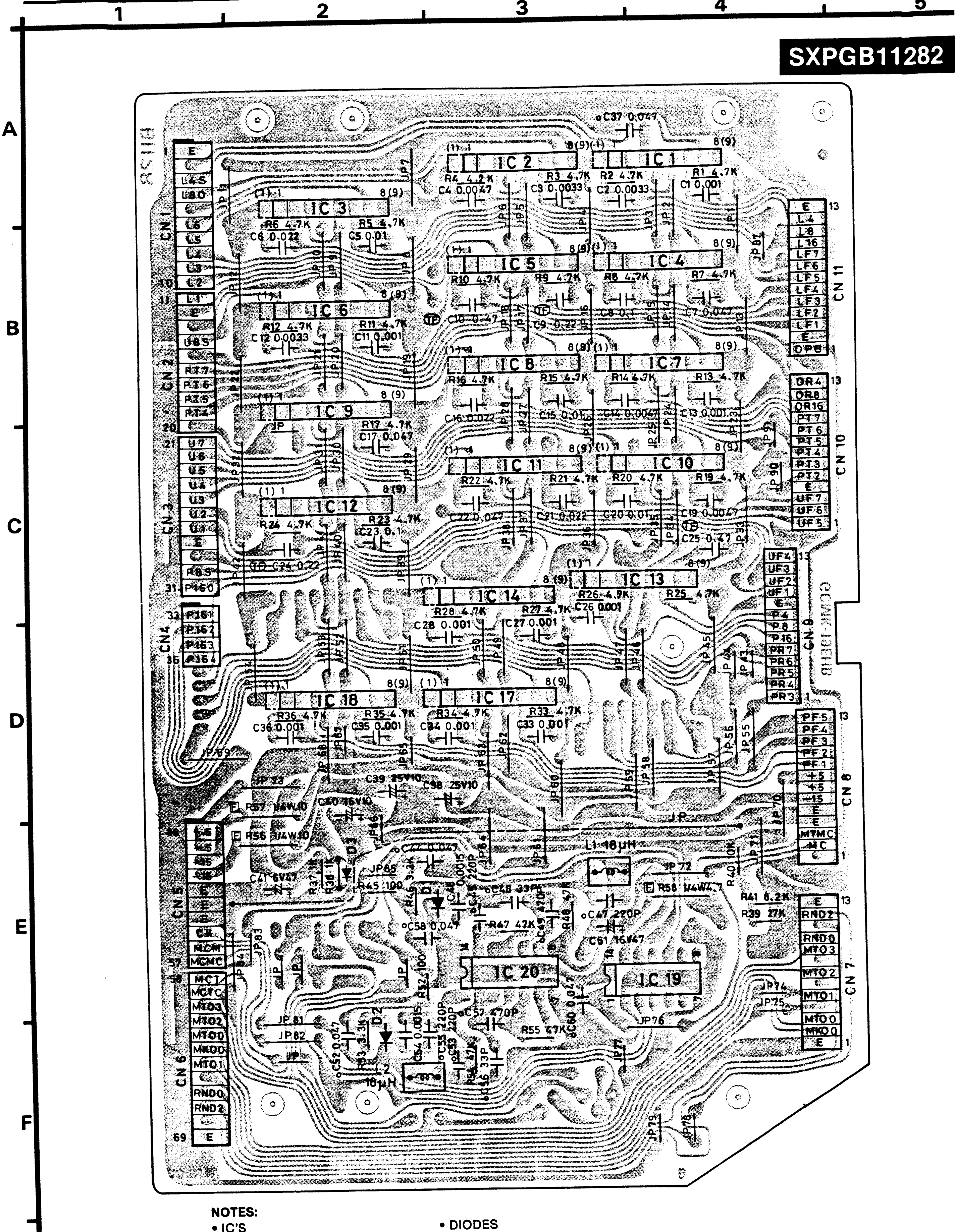
Z1, 2:	EXBP8842MM
Z3:	EXBP8413MM
Z4:	EXBP8613MM
Z5:	EXATA22S

- QUARTZ OSCILLATOR

X1:	SVQG431200A

TONE GENERATOR CIRCUIT BOARD (TG)

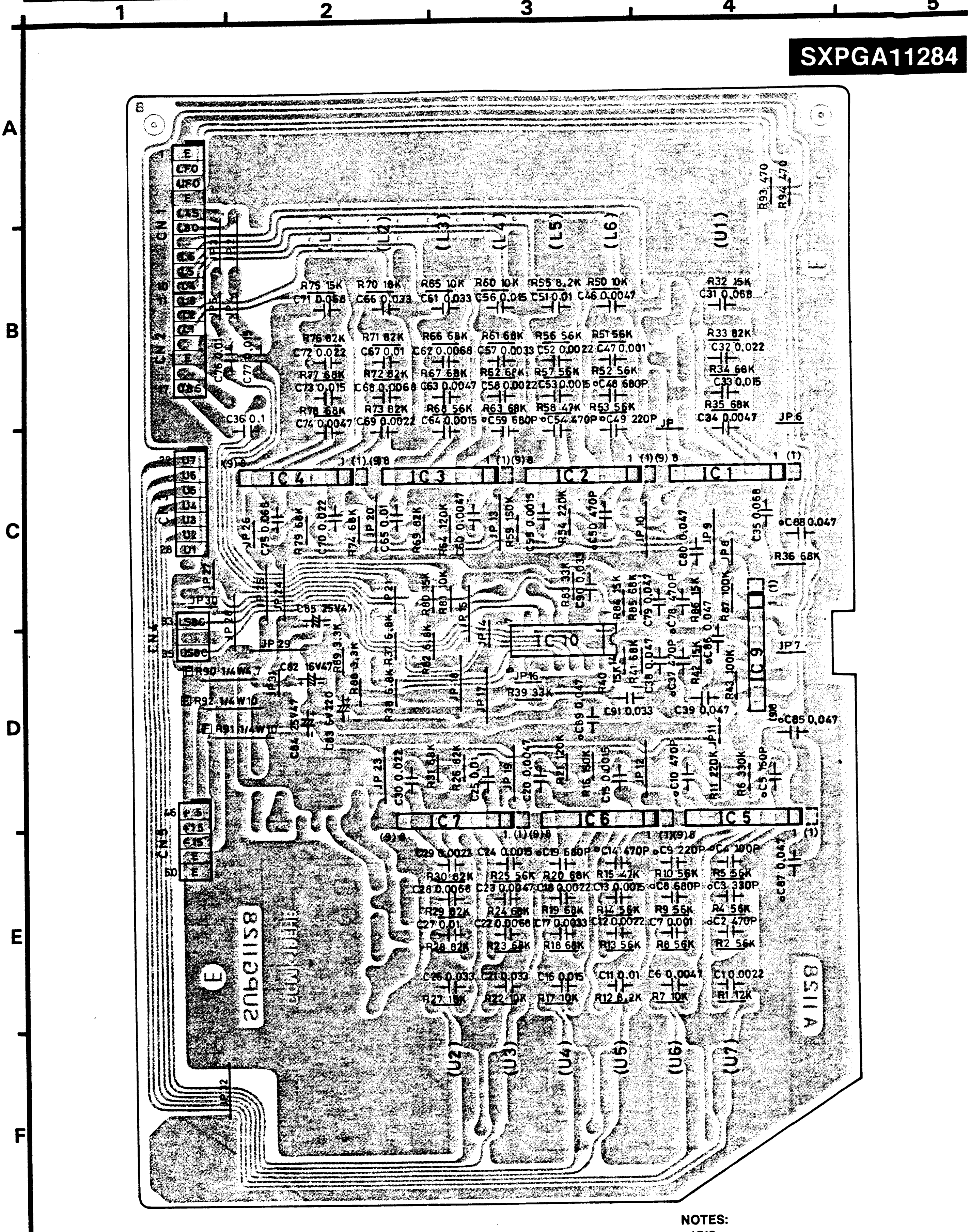
SXPGB11282


1
2
3
4
5
A
B
C
D
E
F
IC 1
IC 2
IC 3
IC 4
IC 5
IC 6
IC 7
IC 8
IC 9
IC 10
IC 11
IC 12
IC 13
IC 14
IC 17
IC 18
IC 19
IC 20
CN 1
CN 2
CN 3
CN4
CN 5
CN 6
CN 7
CN 8
CN 9
CN 10
CN 11
L1 18μH
L2 18μH
D1
D2
D3
C37 0.047
C39 25V10
C38 25V10
C40 16V10
C41 6V47
C61 16V47
R57 1/4W10
R56 1/4W10
R58 1/4W4.7
R41 8.2K
R39 27K

NOTES:

- IC'S
  - IC1 ~ 14, 17, 18: SVIGM5218L (SVIGNJM4558S)
  - IC19: SVIGTC40H393
  - IC20: SVIGTC40H004
- DIODES
  - D1, 2: MA165TA5VT
  - D3: SVDGSM1A02LF
- COILS
  - L1, 2: ELQS180KB

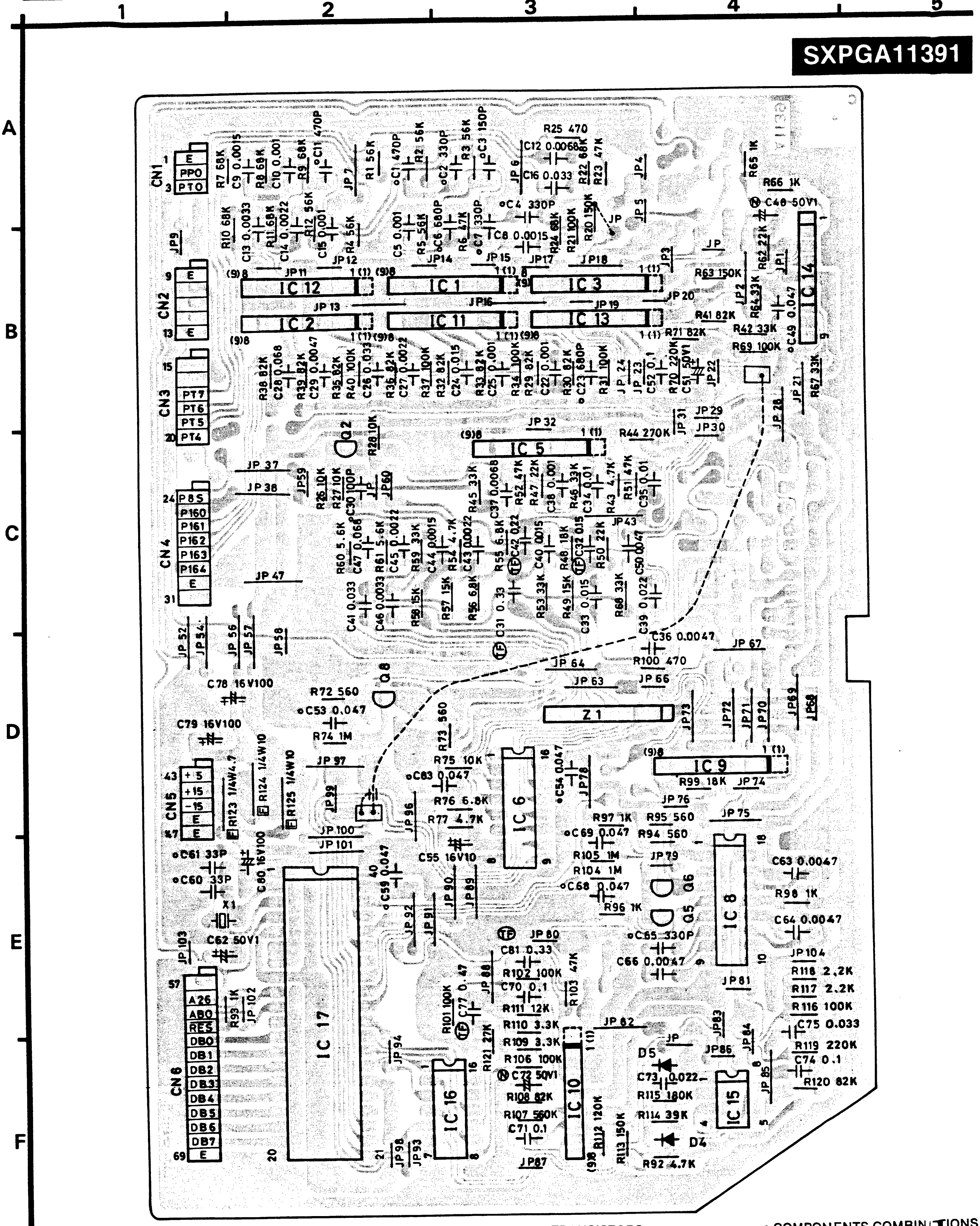
ORGAN CIRCUIT BOARD (ORG)


1
2
3
4
5
A
B
C
D
E
F
SXPGA11284
CN 1
CN 2
CN 3
CN 4
CN 5
IC 1
IC 2
IC 3
IC 4
IC 5
IC 6
IC 7
IC 9
IC 10
(L1)
(L2)
(L3)
(L4)
(L5)
(L6)
(U1)
(U2)
(U3)
(U4)
(U5)
(U6)
(U7)
R93 470
R94 470
JP6
JP7
SUPC1158
A1158

NOTES:
- IC'S

IC1 ~ 7, 9:	SVIGM5218L (SVIGNJM4558S)
IC10:	SVIGUPD4066C

ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT BOARD (OP)


1
2
3
4
5
A
B
C
D
E
F
SXPGA11391
CN1
CN2
CN3
CN4
CN5
CN6
IC 1
IC 2
IC 3
IC 5
IC 6
IC 8
IC 9
IC 10
IC 11
IC 12
IC 13
IC 14
IC 15
IC 16
IC 17
Z 1
X1
Q2
Q5
Q6
Q8
D4
D5
E
PPO
PTO
PT7
PT6
PT5
PT4
P8S
P160
P161
P162
P163
P164
+5
+15
-15
A26
ABO
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7

NOTES:

- IC'S

IC1 ~ 3, 5, 9 ~ 13:	SVIGM5218L (SVIGNJM4558S)	IC8:	SVIGBA6704
		IC14:	SVIGBA6110
		IC15:	SVIGNJM082D
		IC16:	SVIGTC40H004
IC6:	SVIGHD14051B	IC17:	SVIGM8041111

- TRANSISTORS

Q2:	2SC2320LFG
Q5, 6, 8:	2SJ40CE

- DIODES

D4, 5:	MA165TA5VT

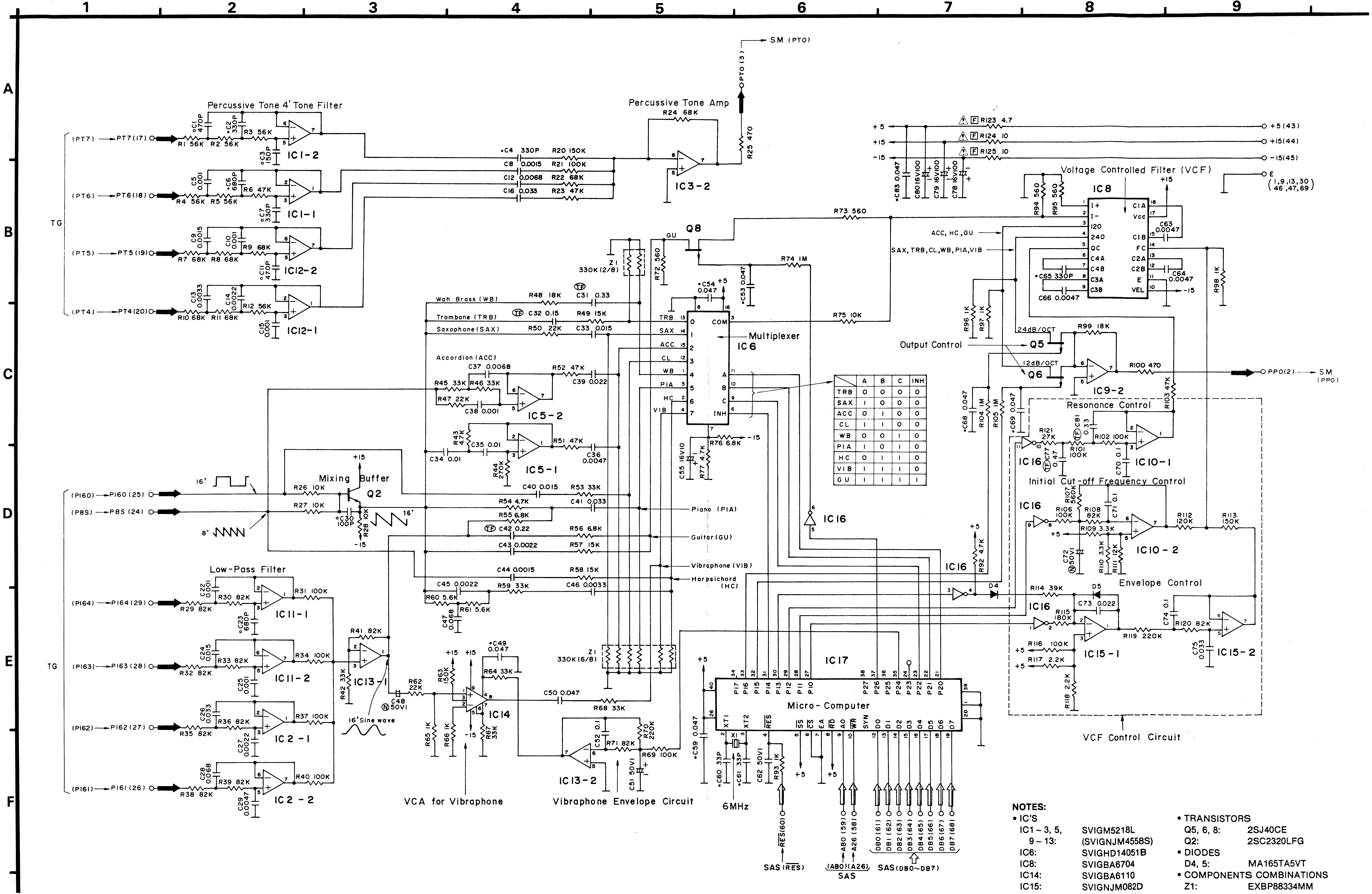
- COMPONENTS COMBINATIONS

Z1:	EXBP88334[illegible]M

- CERAMIC OSCILLATOR

X1:	SVQGCSA6[illegible]0MT

ORCHESTRAL & PERCUSSIVE PRESETS CIRCUIT DIAGRAM (OP)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Percussive Tone 4' Tone Filter
Percussive Tone Amp
SM (PTO)
PTO (3)
R24 68K
R25 470
IC1-2
IC1-1
IC12-2
IC12-1
IC3-2
TG
(PT7) PT7(17)
(PT6) PT6(18)
(PT5) PT5(19)
(PT4) PT4(20)
R1 56K
R2 56K
R3 56K
R4 56K
R5 56K
R6 47K
R7 68K
R8 68K
R9 68K
R10 68K
R11 68K
R12 56K
C1 470P
C2 330P
C3 150P
C5 0.001
C6 680P
C7 330P
C9 0.0015
C10 0.001
C11 470P
C13 0.0033
C14 0.0022
C15 0.001
C4 330P
R20 150K
C8 0.0015
R21 100K
C12 0.0068
R22 68K
C16 0.033
R23 47K
+5
+15
-15
R123 4.7
R124 10
R125 10
+5(43)
+15(44)
-15(45)
C83 0.047
C80 16V100
C79 16V100
C78 16V100
Voltage Controlled Filter (VCF)
IC8
E (1,9,13,30, 46,47,69)
R94 560
R95 560
R73 560
Q8
GU
R72 560
Z1 330K (2/8)
R74 1M
C54 0.047
C53 0.047
ACC, HC, GU
SAX, TRB, CL, WB, PIA, VIB
C65 330P
C66 0.0047
C63 0.0047
C64 0.0047
R98 1K
Wah Brass (WB)
Trombone (TRB)
Saxophone (SAX)
Accordion (ACC)
R48 18K
C31 0.33
C32 0.15
R49 15K
R50 22K
C33 0.015
Multiplexer
IC6
R75 10K
R96 1K
R97 1K
24dB/OCT
12dB/OCT
Output Control
Q5
Q6
R99 18K
R100 470
IC9-2
PPO(2)
SM (PPO)
C37 0.0068
R45 33K
R46 33K
R47 22K
C38 0.001
R52 47K
C39 0.022
IC5-2
R43 4.7K
C35 0.01
C34 0.01
R44 270K
IC5-1
R51 47K
C36 0.0047
R76 6.8K
C55 16V10
R77 4.7K
C68 0.047
R104 1M
R105 1M
C69 0.047
R103 47K
Resonance Control
R121 27K
C81 0.33
R101 100K
R102 100K
C77 0.47
C70 0.1
IC10-1
IC16
Initial Cut-off Frequency Control
R107 560K
R106 100K
R108 82K
C71 0.1
R109 3.3K
IC10-2
R112 120K
R113 150K
C72 50V1
R110 3.3K
R111 12K
16'
8'
Mixing Buffer
Q2
R26 10K
R27 10K
C30 100P
R28 10K
(P160) P160(25)
(P8S) P8S(24)
C40 0.015
R53 33K
R54 4.7K
C41 0.033
R55 6.8K
C42 0.22
R56 6.8K
C43 0.0022
R57 15K
Piano (PIA)
Guitar (GU)
Vibraphone (VIB)
Harpsichord (HC)
C44 0.0015
R58 15K
C45 0.0022
R59 33K
C46 0.0033
R60 5.6K
R61 5.6K
C47 0.068
R92 4.7K
D4
D5
R114 39K
C73 0.022
Envelope Control
R115 180K
R116 100K
R117 2.2K
R118 2.2K
R119 220K
R120 82K
C74 0.1
C75 0.033
IC15-1
IC15-2
VCF Control Circuit
Low-Pass Filter
(P164) P164(29)
(P163) P163(28)
(P162) P162(27)
(P161) P161(26)
R29 82K
R30 82K
R31 100K
C22 0.001
C23 680P
IC11-1
R32 82K
R33 82K
R34 100K
C24 0.015
C25 0.001
IC11-2
R35 82K
R36 82K
R37 100K
C26 0.033
C27 0.0022
IC2-1
R38 82K
R39 82K
R40 100K
C28 0.068
C29 0.0047
IC2-2
R41 82K
R42 33K
IC13-1
16' Sine wave
C48 50V1
R62 22K
R63 150K
R64 33K
C49 0.047
IC14
R65 1K
R66 1K
R67 33K
VCA for Vibraphone
C50 0.047
R68 33K
C52 0.1
R70 220K
R71 82K
R69 100K
C51 50V1
IC13-2
Vibraphone Envelope Circuit
Z1 330K (6/8)
IC17
Micro-Computer
C59 0.047
C60 33P
C61 33P
X1
C62 50V1
R93 1K
6MHz
RES(60)
SAS (RES)
AB0 (59)
A26 (58)
(AB0) (A26)
SAS
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
SAS (DB0~DB7)

	A	B	C	INH
TRB	0	0	0	0
SAX	1	0	0	0
ACC	0	1	0	0
CL	1	1	0	0
WB	0	0	1	0
PIA	1	0	1	0
HC	0	1	1	0
VIB	1	1	1	0
GU	1	1	1	1

NOTES:

- IC'S

IC1 ~ 3, 5, 9 ~ 13:	SVIGM5218L (SVIGNJM4558S)
IC6:	SVIGHD14051B
IC8:	SVIGBA6704
IC14:	SVIGBA6110
IC15:	SVIGNJM082D
IC16:	SVIGTC40H004
IC17:	SVIGM8041111

- TRANSISTORS

Q5, 6, 8:	2SJ40CE
Q2:	2SC2320LFG

- DIODES

D4, 5:	MA165TA5VT

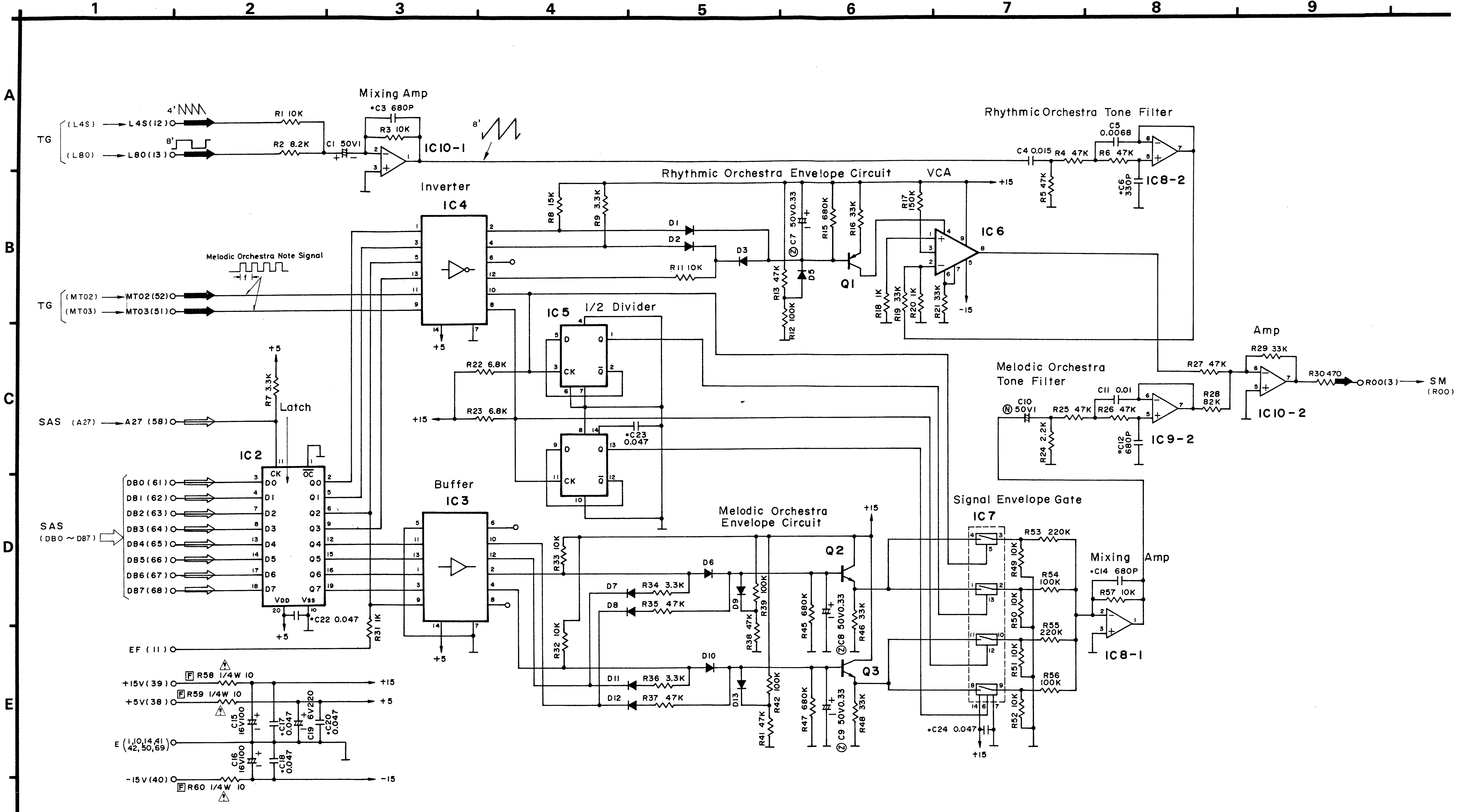
- COMPONENTS COMBINATIONS

Z1:	EXBP88334MM

- CERAMIC OSCILLATOR

X1:	SVQGCSA600MT

ACCOMPANIMENT CIRCUIT DIAGRAM (ACC)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Mixing Amp
•C3 680P
R3 10K
IC10-1
TG
(L4S) L4S(12)
(L80) L80(13)
4'
8'
R1 10K
R2 8.2K
C1 50V1
Rhythmic Orchestra Tone Filter
C5 0.0068
C4 0.015
R4 47K
R6 47K
R5 47K
•C6 330P
IC8-2
Rhythmic Orchestra Envelope Circuit
VCA
+15
Inverter
IC4
R8 15K
R9 3.3K
D1
D2
D3
R11 10K
ZC7 50V0.33
R13 47K
R12 100K
D5
R15 680K
R16 33K
Q1
R17 150K
IC6
R18 1K
R19 33K
R20 1K
R21 33K
-15
Melodic Orchestra Note Signal
f
(MT02) MT02(52)
(MT03) MT03(51)
IC5
1/2 Divider
D
CK
Q
R22 6.8K
R23 6.8K
+5
Amp
R29 33K
R27 47K
R30 470
R00(3)
SM
(R00)
Melodic Orchestra Tone Filter
C11 0.01
C10 50V1
R25 47K
R26 47K
R28 82K
R24 2.2K
•C12 680P
IC9-2
IC10-2
•C23 0.047
R7 3.3K
Latch
SAS (A27) A27 (58)
IC2
CK
OC
D0
D1
D2
D3
D4
D5
D6
D7
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7
VDD
Vss
•C22 0.047
SAS (DB0 ~ DB7)
DB0(61)
DB1(62)
DB2(63)
DB3(64)
DB4(65)
DB5(66)
DB6(67)
DB7(68)
Buffer
IC3
Melodic Orchestra Envelope Circuit
R33 10K
R32 10K
D6
D7
D8
R34 3.3K
R35 47K
D9
R38 47K
R39 100K
Q2
R45 680K
ZC8 50V0.33
R46 33K
D10
D11
D12
R36 3.3K
R37 47K
D13
R41 47K
R42 100K
Q3
R47 680K
ZC9 50V0.33
R48 33K
Signal Envelope Gate
IC7
R53 220K
R49 10K
R54 100K
R50 10K
R55 220K
R51 10K
R56 100K
R52 10K
•C24 0.047
Mixing Amp
•C14 680P
R57 10K
IC8-1
EF (11)
R31 1K
+15V(39)
+5V(38)
F R58 1/4W 10
F R59 1/4W 10
C15 16V100
•C17 0.047
C19 6V220
•C20 0.047
E (1,10,14,41, 42,50,69)
C16 16V100
•C18 0.047
-15V(40)
F R60 1/4W 10
-5

NOTES:

- IC'S

IC2:	SVIGTC40H374
IC3:	SVIGM53217
IC4:	SVIG53216
IC5:	SVIGTC4013BP
IC6:	SVIGBA6110
IC7:	SVIGUPD4066C
IC8 ~ 10:	SVIGM5218L (SVIGNJM4558S)

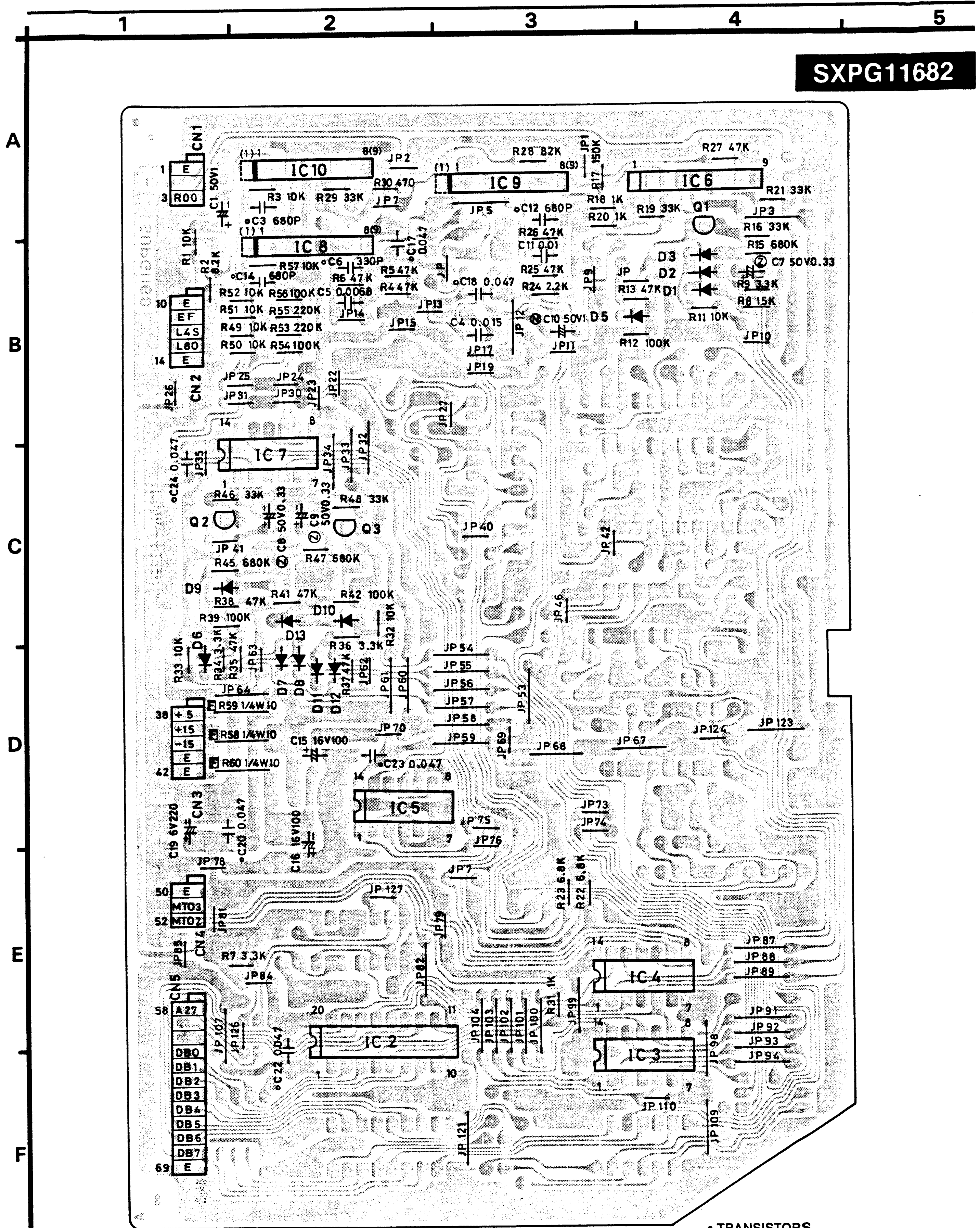
- TRANSISTORS

Q1:	2SA1015GR
Q2, 3:	2SC2320LFG

- DIODES

D1 ~ 3, 5 ~ 13:	MA165TA5VT

ACCOMPANIMENT CIRCUIT BOARD (ACC)


1
2
3
4
5
A
B
C
D
E
F
SXPG11682
IC10
IC9
IC6
IC8
IC7
IC5
IC4
IC3
IC2
CN1
CN2
CN3
CN4
CN5
Q1
Q2
Q3
D1
D2
D3
D5
D6
D7
D8
D9
D10
D11
D12
D13
C1 50V1
C3 680P
C6 330P
C14 680P
C5 0.0068
C12 680P
C11 0.01
C17 0.047
C18 0.047
C4 0.015
C10 50V1
C7 50V0.33
C24 0.047
C8 50V0.33
C9 50V0.33
C15 16V100
C23 0.047
C19 6V220
C20 0.047
C16 16V100
C22 0.047
R1 10K
R2 8.2K
R3 10K
R29 33K
R30 470
R28 82K
R17 150K
R27 47K
R21 33K
R18 1K
R20 1K
R19 33K
R16 33K
R15 680K
R9 3.3K
R8 15K
R11 10K
R12 100K
R13 47K
R26 47K
R25 47K
R24 2.2K
R57 10K
R6 47K
R5 47K
R4 47K
R52 10K
R56 100K
R51 10K
R55 220K
R49 10K
R53 220K
R50 10K
R54 100K
R46 33K
R48 33K
R45 680K
R47 680K
R38 47K
R41 47K
R42 100K
R39 100K
R32 10K
R36 3.3K
R33 10K
R34 3.3K
R35 47K
R37 47K
R59 1/4W10
R58 1/4W10
R60 1/4W10
R23 6.8K
R22 6.8K
R7 3.3K
R31 1K
JP1
JP2
JP3
JP5
JP7
JP9
JP10
JP11
JP12
JP13
JP14
JP15
JP17
JP19
JP22
JP23
JP24
JP25
JP26
JP27
JP30
JP31
JP32
JP33
JP34
JP35
JP40
JP41
JP42
JP46
JP53
JP54
JP55
JP56
JP57
JP58
JP59
JP60
JP61
JP62
JP63
JP64
JP67
JP68
JP69
JP70
JP73
JP74
JP75
JP76
JP78
JP79
JP81
JP82
JP84
JP85
JP87
JP88
JP89
JP91
JP92
JP93
JP94
JP98
JP99
JP100
JP101
JP102
JP103
JP104
JP107
JP109
JP110
JP121
JP123
JP124
JP126
JP127
E
R00
EF
L4S
L80
+5
+15
-15
MT03
MT02
A27
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
1
3
10
14
38
42
50
52
58
69

NOTES:

- IC'S

IC2:	SVIGTC40H374	IC5:	SVIGTC4013BP
IC3:	SVIGM53217	IC6:	SVIGBA6110
IC4:	SVIG53216	IC7:	SVIGUPD4066C
		IC8 ~ 10:	SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS

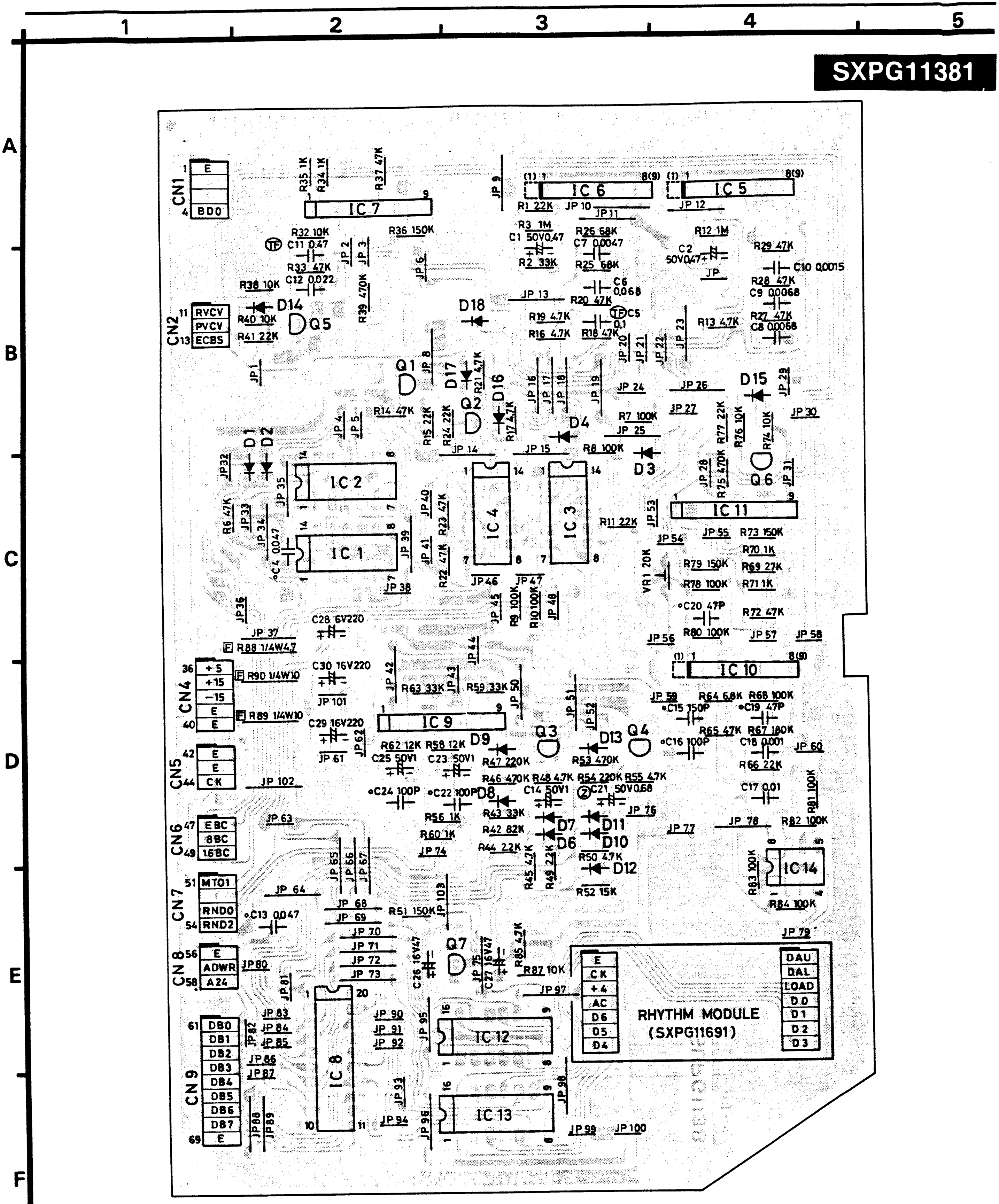
Q1:	2SA1015GR
Q2, 3:	2SC2320LFG

- DIODES

D1 ~ 3, 5 ~ 13:	MA165TA5VT

BASS & DRUM PERCUSSION CIRCUIT BOARD (BD)

SXPG11381


1
2
3
4
5
A
B
C
D
E
F
CN1
E
BD0
IC 7
IC 6
IC 5
CN2
RVCV
PVCV
ECBS
D14
Q5
D18
Q1
Q2
D17
D16
D15
D4
D3
Q6
D1
D2
IC 2
IC 1
IC 4
IC 3
IC 11
VR1 20K
IC 10
CN4
+5
+15
−15
E
E
IC 9
D9
Q3
D13
Q4
CN5
E
E
CK
D8
D7
D6
D11
D10
D12
CN6
EBC
8BC
16BC
IC 14
CN7
MT01
RND0
RND2
Q7
CN 8
E
ADWR
A24
RHYTHM MODULE
(SXPG11691)
E
CK
+4
AC
D6
D5
D4
DAU
DAL
LOAD
D0
D1
D2
D3
CN 9
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
IC 8
IC 12
IC 13
R88 1/4W4.7
R90 1/4W10
R89 1/4W10
C28 6V220
C30 16V220
C29 16V220
C2 50V0.47
C1 50V0.47
C21 50V0.68
C14 50V1
C25 50V1
C23 50V1
C26 16V47
C27 16V47

NOTES:
- IC'S

IC1: SVIGTC40H393
IC2: SVIGMSM4011
IC3, 4: SVIGUPD4066C
IC5, 6, 10: SVIGM5218L (SVIGNJM4558S)
IC7, 11: SVIGBA6110
IC8: SVIGTC40H374
IC9: AN6913
IC12, 13: SVIGTC4050BP
IC14: SVIGNJM082D

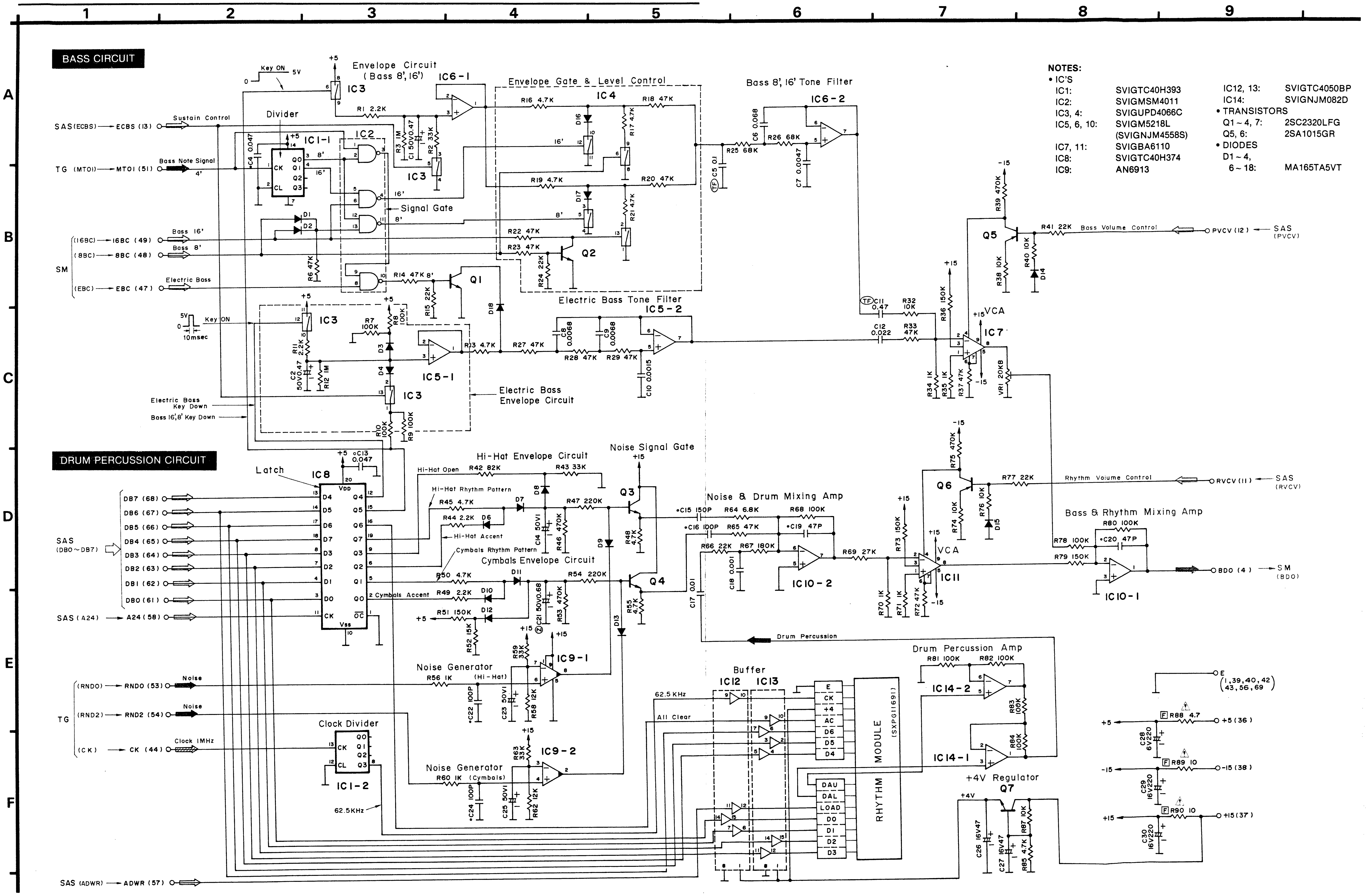
- TRANSISTORS

Q1 ~ 4, 7: 2SC2320LFG
Q5, 6: 2SA1015GR

- DIODES

D1 ~ 4, 6 ~ 18: MA165TA5VT

BASS & DRUM PERCUSSION CIRCUIT DIAGRAM (BD)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
BASS CIRCUIT
DRUM PERCUSSION CIRCUIT
Envelope Circuit (Bass 8', 16')
IC6-1
Envelope Gate & Level Control
IC4
Bass 8', 16' Tone Filter
IC6-2
Key ON 5V
Sustain Control
Divider
IC1-1
IC2
IC3
Signal Gate
Bass Note Signal
SAS(ECBS) — ECBS (13)
TG (MT01) — MT01 (51)
Bass 16'
Bass 8'
Electric Bass
SM
(16BC) — 16BC (49)
(8BC) — 8BC (48)
(EBC) — EBC (47)
Q1
Q2
Q5
Q6
Electric Bass Tone Filter
IC5-2
IC5-1
Electric Bass Envelope Circuit
Electric Bass Key Down
Bass 16', 8' Key Down
10msec
VCA
IC7
VR1 20KB
R41 22K Bass Volume Control
PVCV (12) — SAS (PVCV)
Latch
IC8
Hi-Hat Envelope Circuit
Hi-Hat Open
Hi-Hat Rhythm Pattern
Hi-Hat Accent
Cymbals Rhythm Pattern
Cymbals Envelope Circuit
Cymbals Accent
Noise Signal Gate
Q3
Q4
Noise & Drum Mixing Amp
IC10-2
IC11
R77 22K Rhythm Volume Control
RVCV (11) — SAS (RVCV)
Bass & Rhythm Mixing Amp
IC10-1
BDO (4) — SM (BDO)
SAS (DB0~DB7)
DB7 (68)
DB6 (67)
DB5 (66)
DB4 (65)
DB3 (64)
DB2 (63)
DB1 (62)
DB0 (61)
SAS (A24) — A24 (58)
Drum Percussion
Noise Generator (Hi-Hat)
IC9-1
Noise Generator (Cymbals)
IC9-2
TG
(RND0) — RND0 (53) Noise
(RND2) — RND2 (54) Noise
(CK) — CK (44) Clock 1MHz
Clock Divider
IC1-2
62.5KHz
All Clear
Buffer
IC12
IC13
RHYTHM MODULE (SXPG11691)
Drum Percussion Amp
IC14-2
IC14-1
+4V Regulator
Q7
SAS (ADWR) — ADWR (57)
E (1, 39, 40, 42, 43, 56, 69)
+5 — F R88 4.7 — +5 (36)
-15 — F R89 10 — -15 (38)
+15 — F R90 10 — +15 (37)

NOTES:

- IC'S

IC1:	SVIGTC40H393	IC12, 13:	SVIGTC4050BP
IC2:	SVIGMSM4011	IC14:	SVIGNJM082D
IC3, 4:	SVIGUPD4066C		
IC5, 6, 10:	SVIGM5218L (SVIGNJM4558S)		
IC7, 11:	SVIGBA6110		
IC8:	SVIGTC40H374		
IC9:	AN6913		

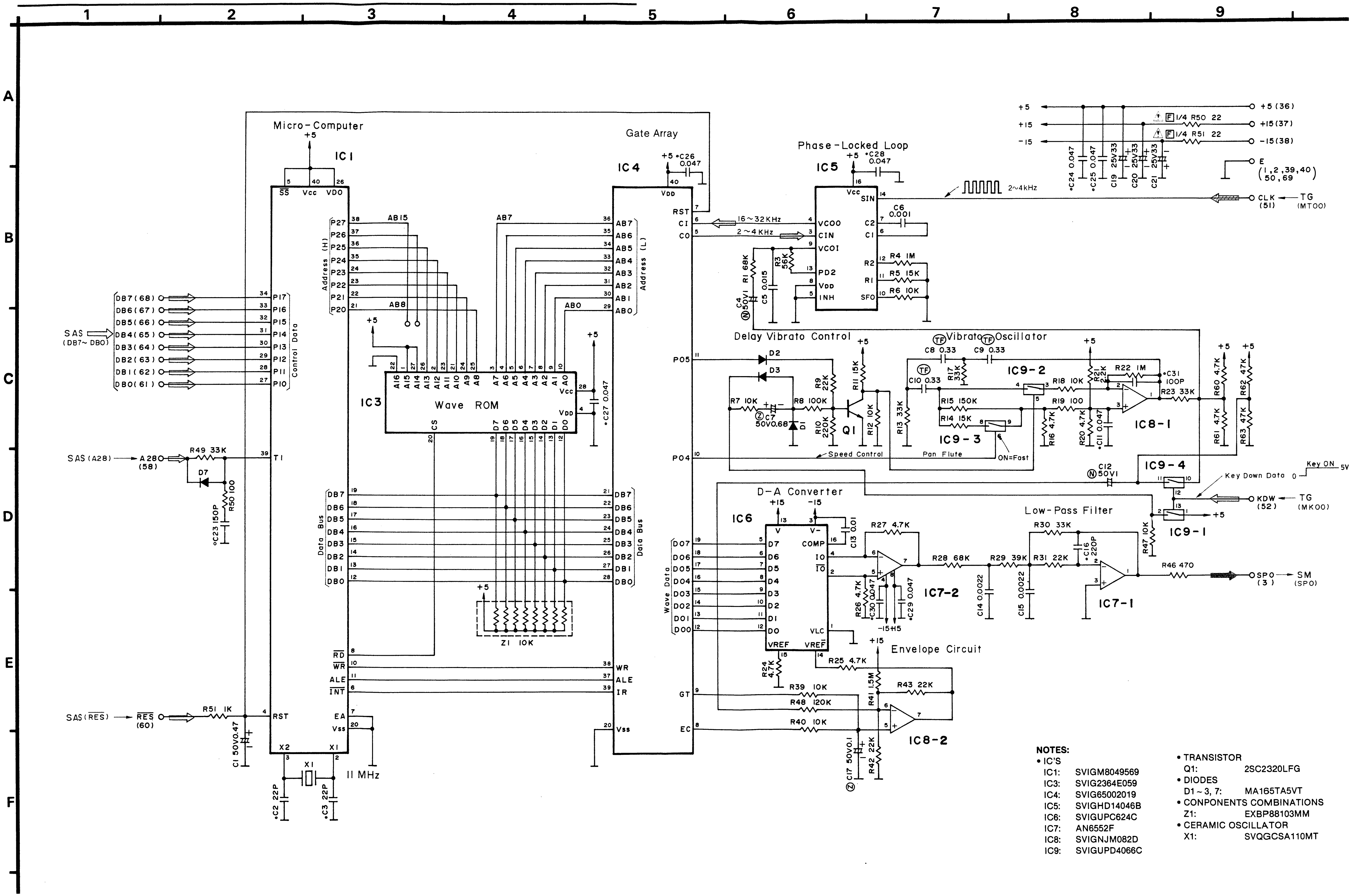
- TRANSISTORS

Q1 ~ 4, 7:	2SC2320LFG
Q5, 6:	2SA1015GR

- DIODES

D1 ~ 4, 6 ~ 18:	MA165TA5VT

SOLO SYNTHE PRESETS CIRCUIT DIAGRAM (SPS)



1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro-Computer
IC1
SS
Vcc
VDD
P27
P26
P25
P24
P23
P22
P21
P20
Address (H)
P17
P16
P15
P14
P13
P12
P11
P10
Control Data
T1
RST
X2
X1
EA
Vss
RD
WR
ALE
INT
Data Bus
DB7
DB6
DB5
DB4
DB3
DB2
DB1
DB0
DB7 (68)
DB6 (67)
DB5 (66)
DB4 (65)
DB3 (64)
DB2 (63)
DB1 (62)
DB0 (61)
SAS (DB7~ DB0)
SAS (A28) → A28 (58)
R49 33K
D7
R50 100
C23 150P
SAS (RES) → RES (60)
R51 1K
C1 50V0.47
X1
11 MHz
C2 22P
C3 22P
AB15
AB8
AB7
AB0
IC3
Wave ROM
A16
A15
A14
A13
A12
A11
A10
A9
A8
A7
A6
A5
A4
A3
A2
A1
A0
Vcc
VDD
CS
D7
D6
D5
D4
D3
D2
D1
D0
C27 0.047
Z1 10K
+5
Gate Array
IC4
C26 0.047
VDD
RST
CI
CO
AB7
AB6
AB5
AB4
AB3
AB2
AB1
AB0
Address (L)
P05
P04
GT
EC
WR
ALE
IR
Vss
Data Bus
Wave Data
DO7
DO6
DO5
DO4
DO3
DO2
DO1
DO0
Phase-Locked Loop
IC5
C28 0.047
VCOO
CIN
VCOI
PD2
VDD
INH
Vcc
SIN
C2
C1
R2
R1
SFO
16~32KHz
2~4KHz
2~4kHz
C6 0.001
R4 1M
R5 15K
R6 10K
R1 68K
R3 56K
C4 50V1
C5 0.015
Delay Vibrato Control
D2
D3
D1
R7 10K
C7 50V0.68
R8 100K
R9 22K
R10 220K
R11 15K
R12 10K
Q1
Speed Control
Vibrato Oscillator
TF
C8 0.33
C9 0.33
C10 0.33
R17 33K
R13 33K
IC9-2
IC9-3
R15 150K
R14 15K
Pan Flute
ON=Fast
R18 10K
R19 100
R21 22K
R22 1M
C31 100P
R16 4.7K
R20 4.7K
C11 0.047
IC8-1
R23 33K
R60 4.7K
R61 4.7K
R62 47K
R63 47K
C12 50V1
IC9-4
Key Down Data
Key ON 5V
0
KDW ← TG (52) (MK00)
IC9-1
R47 10K
D-A Converter
IC6
+15
-15
V
V-
COMP
IO
VLC
VREF
C13 0.01
R27 4.7K
R28 68K
IC7-2
R26 4.7K
C30 0.047
C29 0.047
-15
+15
C14 0.0022
Low-Pass Filter
R30 33K
C16 220P
R29 39K
R31 22K
C15 0.0022
IC7-1
R46 470
SPO → SM (3) (SPO)
Envelope Circuit
R24 4.7K
R25 4.7K
R39 10K
R48 120K
R40 10K
R41 1.5M
R43 22K
IC8-2
C17 50V0.1
R42 22K
+5 (36)
+15 (37)
-15 (38)
F 1/4 R50 22
F 1/4 R51 22
C24 0.047
C25 0.047
C19 25V33
C20 25V33
C21 25V33
E (1,2,39,40, 50,69)
CLK ← TG (51) (MT00)

NOTES:

- IC'S

IC1:	SVIGM8049569
IC3:	SVIG2364E059
IC4:	SVIG65002019
IC5:	SVIGHD14046B
IC6:	SVIGUPC624C
IC7:	AN6552F
IC8:	SVIGNJM082D
IC9:	SVIGUPD4066C

- TRANSISTOR

Q1:	2SC2320LFG

- DIODES

D1 ~ 3, 7:	MA165TA5VT

- CONPONENTS COMBINATIONS

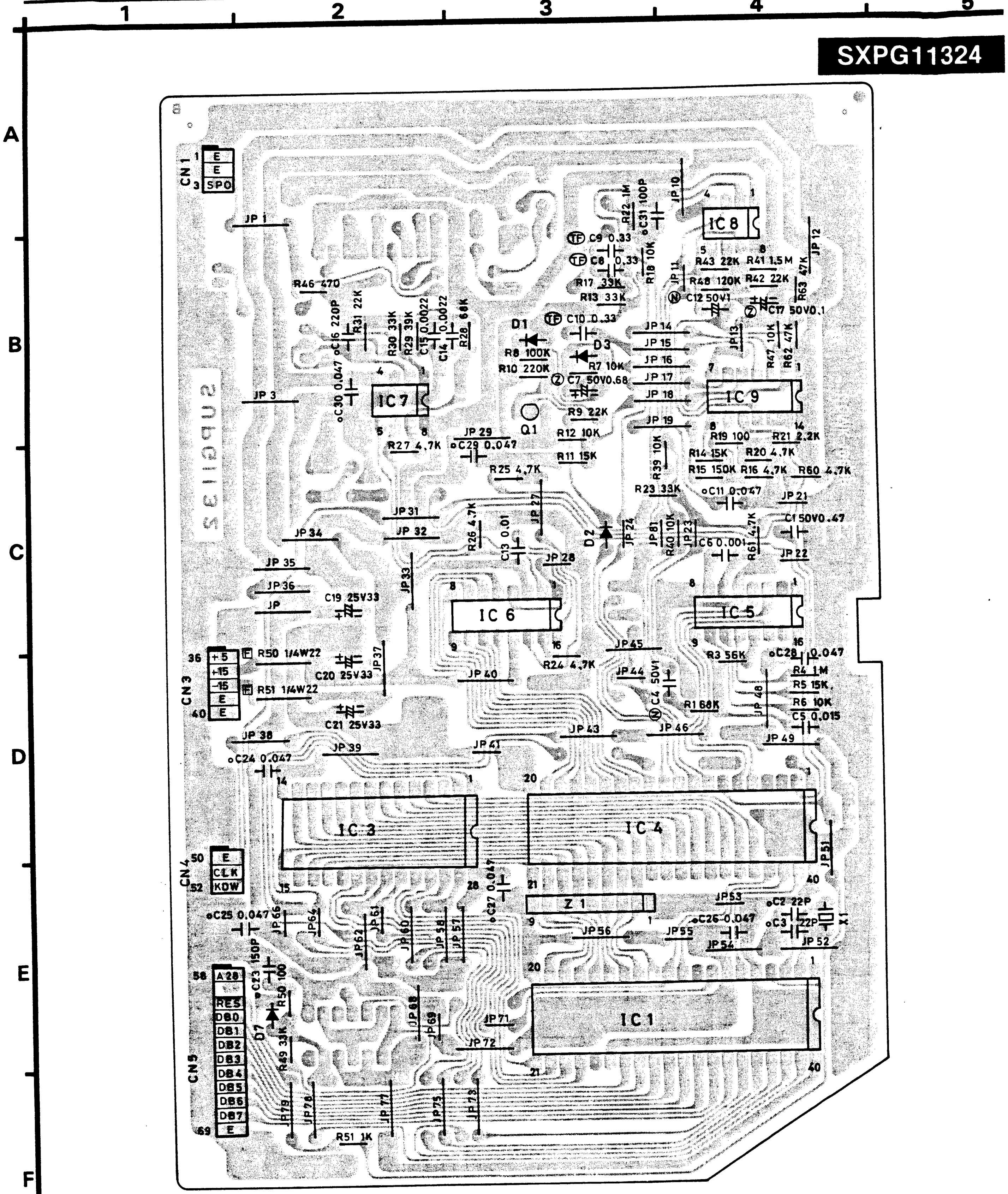
Z1:	EXBP88103MM

- CERAMIC OSCILLATOR

X1:	SVQGCSA110MT

SOLO SYNTHE PRESETS CIRCUIT BOARD (SPS)

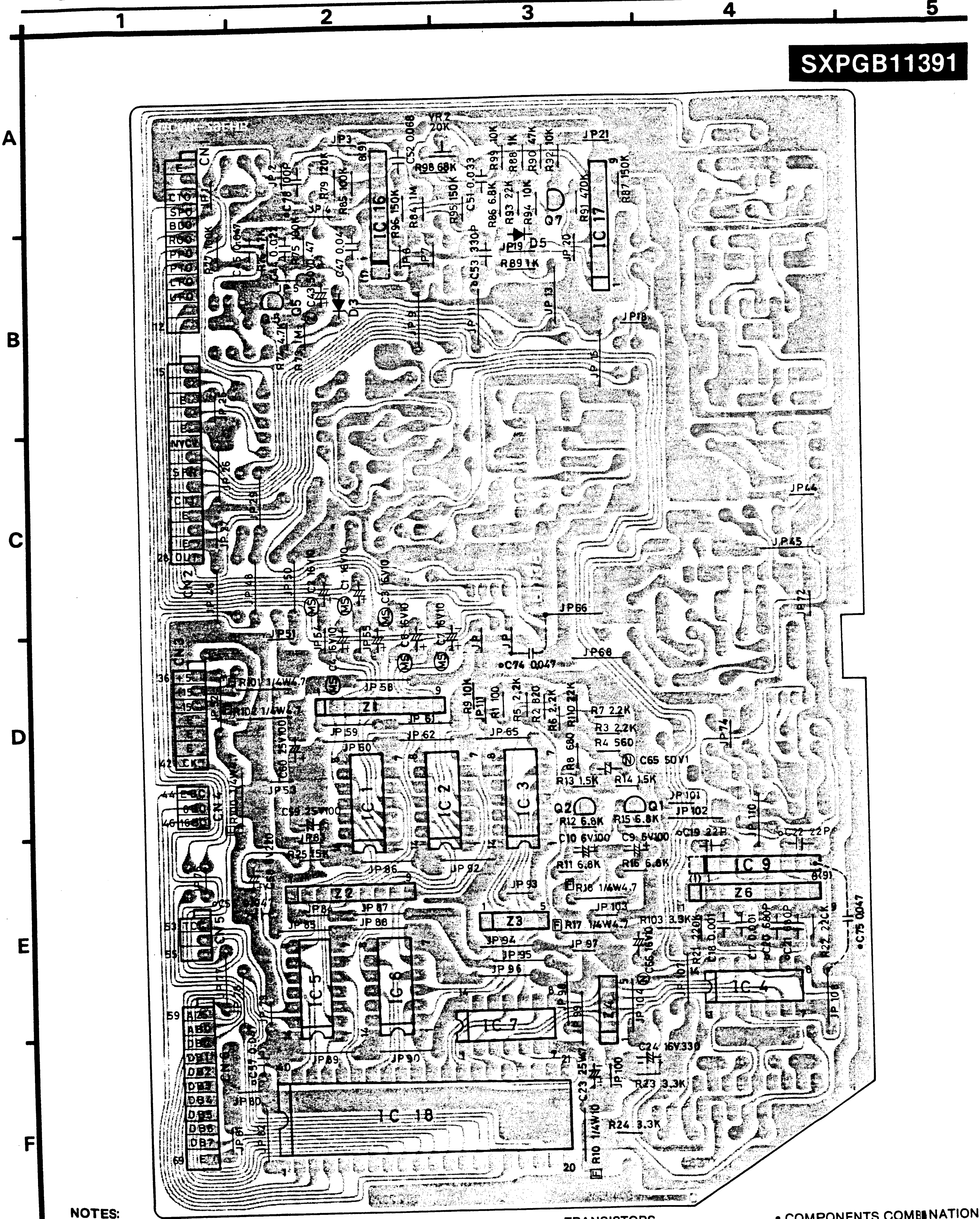
SXPG11324


1
2
3
4
5
A
B
C
D
E
F
CN1
E
E
SPO
IC8
IC7
IC9
IC6
IC5
IC3
IC4
IC1
Z1
Q1
D1
D2
D3
D7
X1
CN3
+5
+15
-15
E
E
CN4
E
CLK
KDW
CN5
A28
RES
DB0
DB1
DB2
DB3
DB4
DB5
DB6
DB7
E
R46 470
R31 22K
C16 220P
R30 33K
R29 39K
C15 0.0022
C14 0.0022
R28 68K
C30 0.047
R27 4.7K
C29 0.047
R8 100K
R10 220K
R7 10K
C7 50V0.68
R9 22K
R12 10K
R11 15K
R25 4.7K
C9 0.33
C8 0.33
R17 33K
R13 33K
C10 0.33
R22 1M
C31 100P
R18 10K
R43 22K
R41 1.5M
R48 120K
R42 22K
R63 47K
C12 50V1
C17 50V0.1
R47 10K
R62 47K
R19 100
R21 2.2K
R14 15K
R20 4.7K
R15 150K
R16 4.7K
R60 4.7K
R39 10K
R23 33K
C11 0.047
C1 50V0.47
R40 10K
C6 0.001
R61 4.7K
R26 4.7K
C13 0.01
C19 25V33
C20 25V33
C21 25V33
R50 1/4W22
R51 1/4W22
R24 4.7K
C4 50V1
R1 68K
R3 56K
C28 0.047
R4 1M
R5 15K
R6 10K
C5 0.015
C24 0.047
C25 0.047
C27 0.047
C26 0.047
C2 22P
C3 22P
C23 150P
R50 100
R49 33K
R51 1K

NOTES:

- IC'S
  - IC1: SVIGM8049569
  - IC3: SVIG2364E059
  - IC4: SVIG65002019
  - IC5: SVIGHD14046B
  - IC6: SVIGUPC624C
  - IC7: AN6552F
  - IC8: SVIGNJM082D
  - IC9: SVIGUPD4066C
- TRANSISTOR
  - Q1: 2SC2320LFG
- DIODES
  - D1 ~ 3, 7: MA165TA5VT
- CONPONENTS COMBINATIONS
  - Z1: EXBP88103MM
- CERAMIC OSCILLATOR
  - X1: SVQGCSA110MT

SELECTOR & MIXING CIRCUIT BOARD (SM)


1
2
3
4
5
A
B
C
D
E
F
SXPGB11391
CN1
CN2
CN3
CN4
CN5
CN6
IC1
IC2
IC3
IC4
IC5
IC6
IC7
IC9
IC16
IC17
IC18
Z1
Z2
Z3
Z4
Z6
Q1
Q2
Q5
Q7
D3
D5
VR2 20K

NOTES:

- IC'S

IC1～4:	SVIGUPD4066C
IC5～7:	SVIGM53207
IC9:	SVIGM5218L (SVIGNJM4558S)
IC16:	SVIGM5218L
IC17:	SVIGBA6110
IC18:	SVIG65002018

- TRANSISTORS

Q1:	2SC2320LFG
Q2, 7:	2SA1015GR
Q5:	2SJ40CE

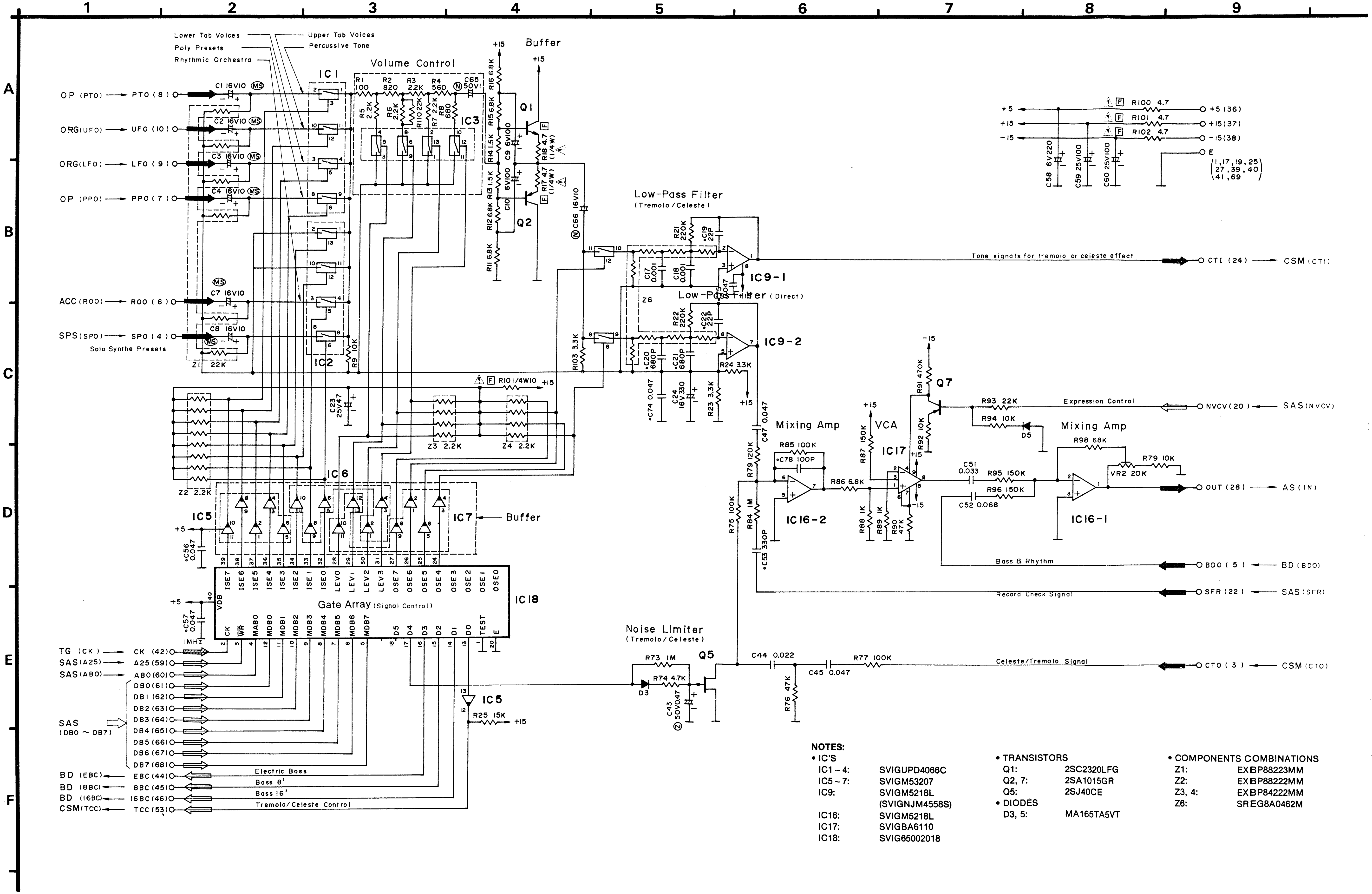
- DIODES

D3, 5:	MA165TA5VT

- COMPONENTS COMBINATIONS

Z1:	EXBP88223M M
Z2:	EXBP88222M M
Z3, 4:	EXBP84222M M
Z6:	SREG8A0462 M

SELECTOR & MIXING CIRCUIT DIAGRAM (SM)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Lower Tab Voices
Poly Presets
Rhythmic Orchestra
Upper Tab Voices
Percussive Tone
OP (PTO) → PTO (8)
ORG(UFO) → UFO (10)
ORG(LFO) → LFO (9)
OP (PPO) → PPO (7)
ACC(ROO) → ROO (6)
SPS(SPO) → SPO (4)
Solo Synthe Presets
C1 16V10
C2 16V10
C3 16V10
C4 16V10
C7 16V10
C8 16V10
Z1 22K
IC1
IC2
IC3
Volume Control
R1 100
R2 820
R3 2.2K
R4 560
C65 50V1
R5 2.2K
R6 2.2K
R110 22K
R7 2.2K
R8 680
R9 10K
Buffer
+15
R16 6.8K
R15 6.8K
R14 1.5K
R13 1.5K
R12 6.8K
R11 6.8K
C9 6V100
C10 6V100
R18 4.7 (1/4W)
R17 47 (1/4W)
Q1
Q2
C66 16V10
Low-Pass Filter (Tremolo/Celeste)
R21 220K
C19 22P
C17 0.001
C18 0.001
C147 0.047
IC9-1
Z6
Low-Pass Filter (Direct)
R22 220K
C22 22P
C20 680P
C21 680P
IC9-2
R24 3.3K
R103 3.3K
C74 0.047
C24 16V330
R23 3.3K
Tone signals for tremolo or celeste effect
CTI (24) → CSM (CTI)
R10 1/4W10
C23 25V47
Z2 2.2K
Z3 2.2K
Z4 2.2K
IC6
IC5
IC7
Buffer
C56 0.047
C57 0.047
+5
ISE7 ISE6 ISE5 ISE4 ISE3 ISE1 ISE0 LEV0 LEV1 LEV2 LEV3 OSE7 OSE6 OSE5 OSE4 OSE3 OSE2 OSE1 OSE0
VDB
Gate Array (Signal Control)
IC18
CK WR MAB0 MDB0 MDB1 MDB2 MDB3 MDB4 MDB5 MDB6 MDB7 D5 D4 D3 D2 D1 D0 TEST E
1MHz
TG (CK) → CK (42)
SAS(A25) → A25 (59)
SAS(ABO) → ABO (60)
SAS (DBO ~ DB7)
DB0 (61)
DB1 (62)
DB2 (63)
DB3 (64)
DB4 (65)
DB5 (66)
DB6 (67)
DB7 (68)
BD (EBC) ← EBC (44)
BD (8BC) ← 8BC (45)
BD (16BC) ← 16BC (46)
CSM(TCC) ← TCC (53)
Electric Bass
Bass 8'
Bass 16'
Tremolo/Celeste Control
IC5
R25 15K
Noise Limiter (Tremolo/Celeste)
R73 1M
R74 4.7K
D3
C43 50V0.47
Q5
C44 0.022
C45 0.047
R77 100K
R76 47K
Celeste/Tremolo Signal
CTO (3) → CSM (CTO)
C47 0.047
Mixing Amp
R85 100K
C78 100P
R79 120K
R75 100K
R84 1M
C53 330P
IC16-2
R86 6.8K
VCA
R87 150K
IC17
R88 1K
R89 1K
R90 47K
-15
R91 470K
Q7
R92 10K
R93 22K
R94 10K
D5
Expression Control
NVCV (20) ← SAS (NVCV)
Mixing Amp
R98 68K
R79 10K
VR2 20K
C51 0.033
R95 150K
R96 150K
C52 0.068
IC16-1
OUT (28) → AS (IN)
Bass & Rhythm
BDO (5) ← BD (BDO)
Record Check Signal
SFR (22) ← SAS (SFR)
R100 4.7
R101 4.7
R102 4.7
+5 (36)
+15 (37)
-15 (38)
E (1, 17, 19, 25, 27, 39, 40, 41, 69)
C58 6V220
C59 25V100
C60 25V100

NOTES:

- IC'S

IC1 ~ 4:	SVIGUPD4066C
IC5 ~ 7:	SVIGM53207
IC9:	SVIGM5218L (SVIGNJM4558S)
IC16:	SVIGM5218L
IC17:	SVIGBA6110
IC18:	SVIG65002018

- TRANSISTORS

Q1:	2SC2320LFG
Q2, 7:	2SA1015GR
Q5:	2SJ40CE

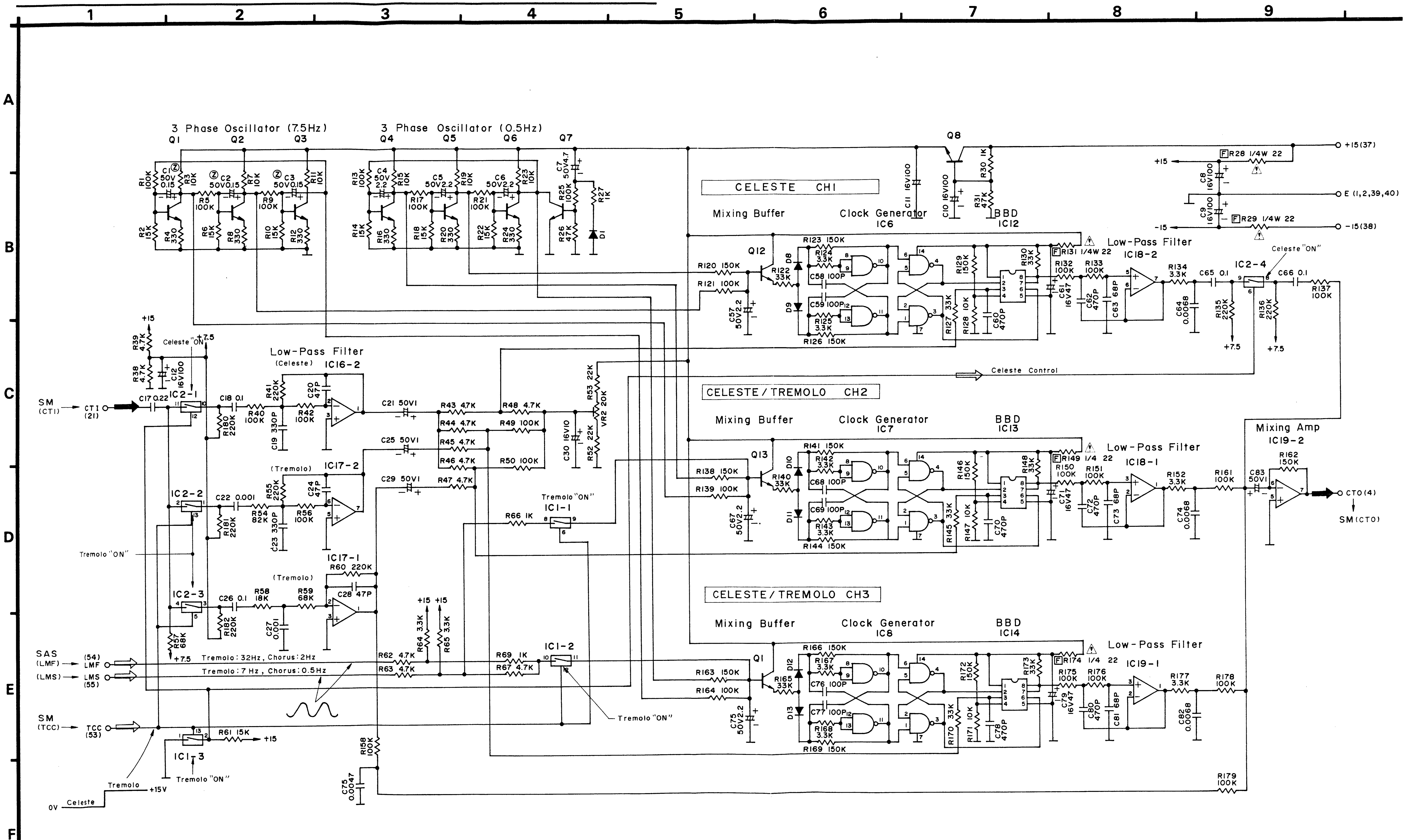
- DIODES

D3, 5:	MA165TA5VT

- COMPONENTS COMBINATIONS

Z1:	EXBP88223MM
Z2:	EXBP88222MM
Z3, 4:	EXBP84222MM
Z6:	SREG8A0462M

CELESTE & TREMOLO CIRCUIT DIAGRAM (CSM)

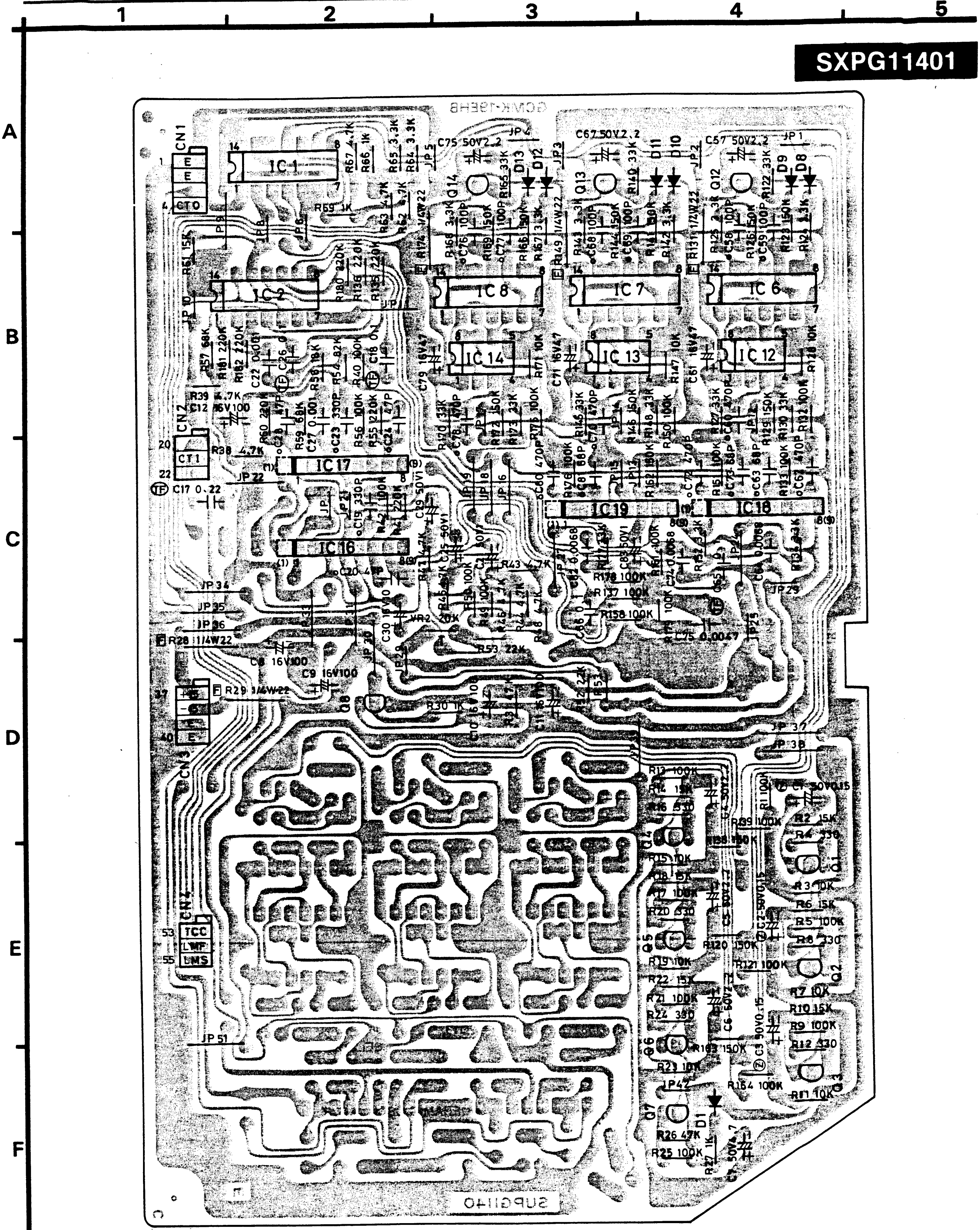

1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
3 Phase Oscillator (7.5Hz)
Q1
Q2
Q3
3 Phase Oscillator (0.5Hz)
Q4
Q5
Q6
Q7
Q8
CELESTE CH1
Mixing Buffer
Clock Generator IC6
BBD IC12
Low-Pass Filter IC18-2
Q12
IC2-4
Celeste "ON"
+15(37)
+15
E (1,2,39,40)
-15
-15(38)
Celeste Control
CELESTE/TREMOLO CH2
Mixing Buffer
Clock Generator IC7
BBD IC13
Low-Pass Filter IC18-1
Q13
Mixing Amp IC19-2
CTO(4)
SM(CTO)
CELESTE/TREMOLO CH3
Mixing Buffer
Clock Generator IC8
BBD IC14
Low-Pass Filter IC19-1
Q1
SM (CT1)
CT1 (21)
IC2-1
Low-Pass Filter (Celeste) IC16-2
(Tremolo) IC17-2
IC2-2
Tremolo "ON"
IC2-3
IC17-1 (Tremolo)
Tremolo "ON"
IC1-1
IC1-2
SAS (LMF) (54) LMF
(LMS) LMS (55)
Tremolo: 32Hz, Chorus: 2Hz
Tremolo: 7Hz, Chorus: 0.5Hz
SM (TCC) TCC (53)
IC1-3
Tremolo "ON"
Tremolo
Celeste
0V
+15V
+7.5
R61 15K
VR2 20K

NOTES:

- IC'S
  - IC1, 2: SVIGUPD4066C
  - IC6 ~ 8: SVIGMSM4011
  - IC12 ~ 14: MN3006
  - IC16 ~ 19: SVIGM5218L (SVIGNJM4558S)
- TRANSISTORS
  - Q1 ~ 8, 12 ~ 14: 2SC2320LFG
- DIODES
  - D1, 8 ~ 13: MA165TA5VT

CELESTE & TREMOLO CIRCUIT BOARD (CSM)

SXPG11401


1
2
3
4
5
A
B
C
D
E
F
CN1
CN2
CN3
CN4
IC1
IC2
IC6
IC7
IC8
IC12
IC13
IC14
IC16
IC17
IC18
IC19
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8
Q12
Q13
Q14
D1
D8
D9
D10
D11
D12
D13
JP1
JP2
JP3
JP4
JP5
JP34
JP35
JP36
JP37
JP38
JP51
VR2 20K
C75 50V2.2
C67 50V2.2
C57 50V2.2
C8 16V100
C9 16V100
C12 16V100
C17 0.22
R28 1/4W22
R29 1/4W22
R30 1K
R53 22K
SUPG1140
GCMK-136HB

NOTES:

- IC'S

IC1, 2: SVIGUPD4066C
IC6 ~ 8: SVIGMSM4011
IC12 ~ 14: MN3006
IC16 ~ 19: SVIGM5218L (SVIGNJM4558S)

- TRANSISTORS

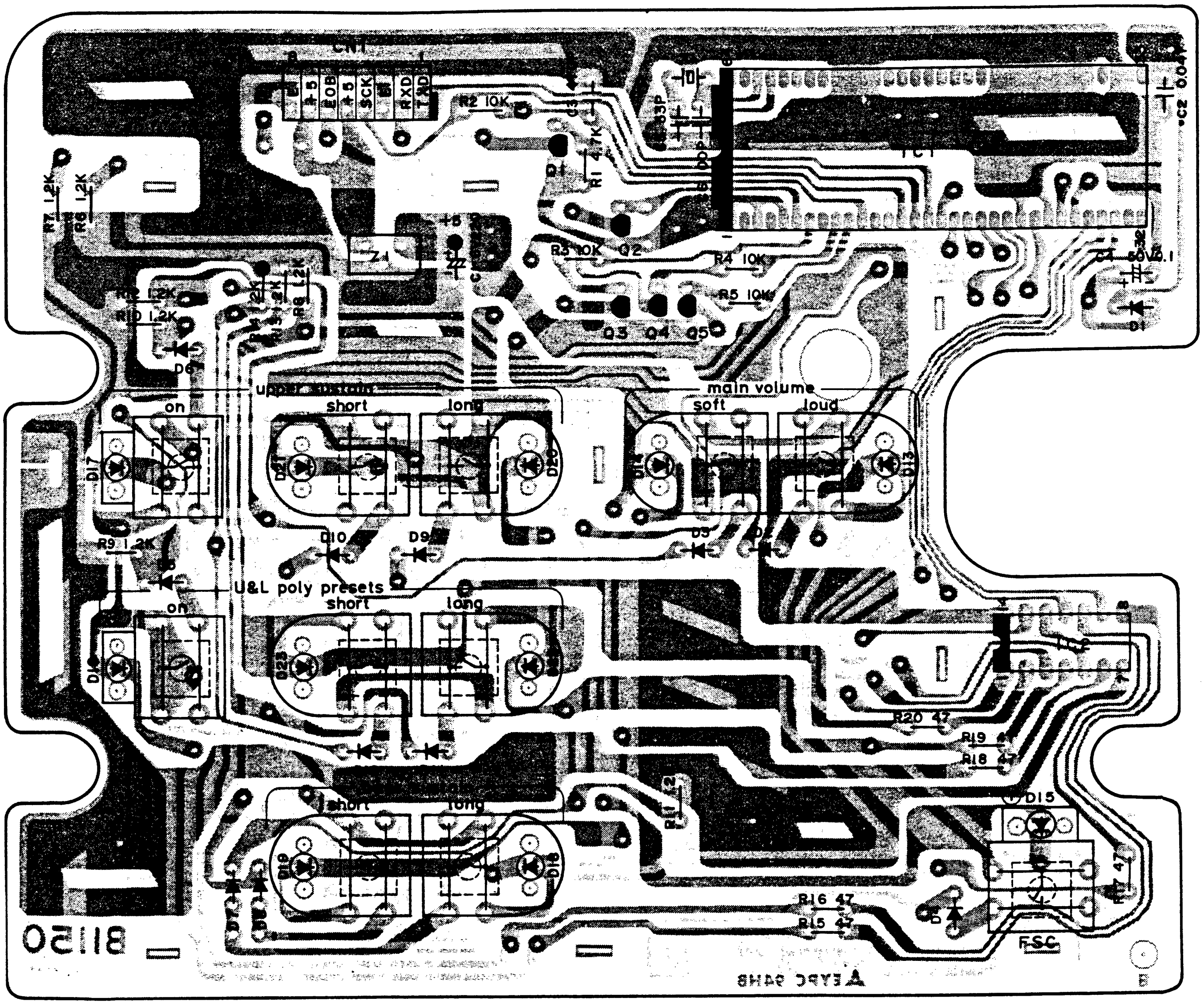
Q1 ~ 8, 12 ~ 14: 2SC2320LFG

- DIODES

D1, 8 ~ 13: MA165TA5VT

CONTROL PANEL SWITCH RIGHT CIRCUIT BOARD (CPSR)

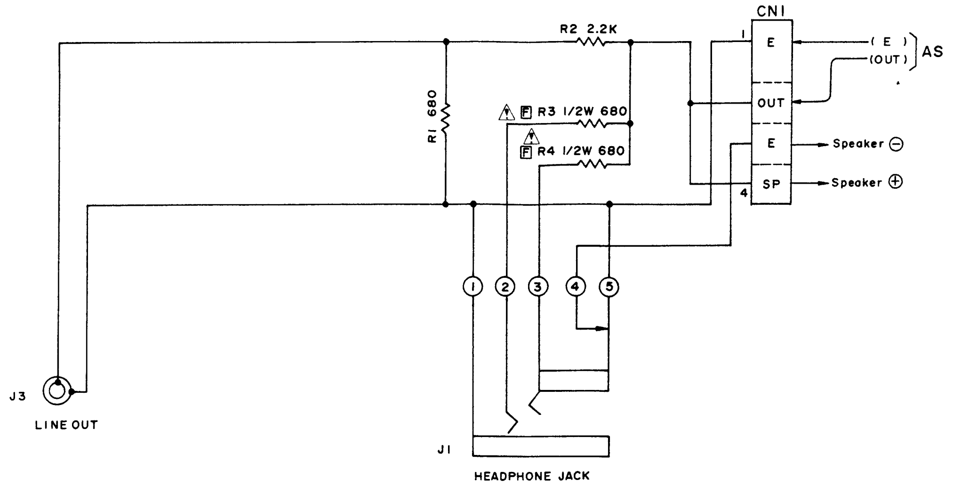
SXPGB11501


1
2
3
4
5
A
B
C
D
E
F
CN1
+5
EOB
SCK
RXD
TXD
R2 10K
R1 4.7K
D1
R3 10K
Q1
Q2
Q3
Q4
Q5
R4 10K
R5 10K
IC1
C1 50V0.1
C2 0.047
Z1
R7 1.2K
R6 1.2K
R12 1.2K
R10 1.2K
R9 1.2K
D6
D1
upper sustain
short
long
on
main volume
soft
loud
D17
D21
D20
D14
D13
D10
D9
D3
D2
U&L poly presets
D16
D23
D22
R20 47
R19 47
R18 47
short
long
D19
D18
D15
R16 47
R15 47
R17 47
FSC
81150

NOTES:

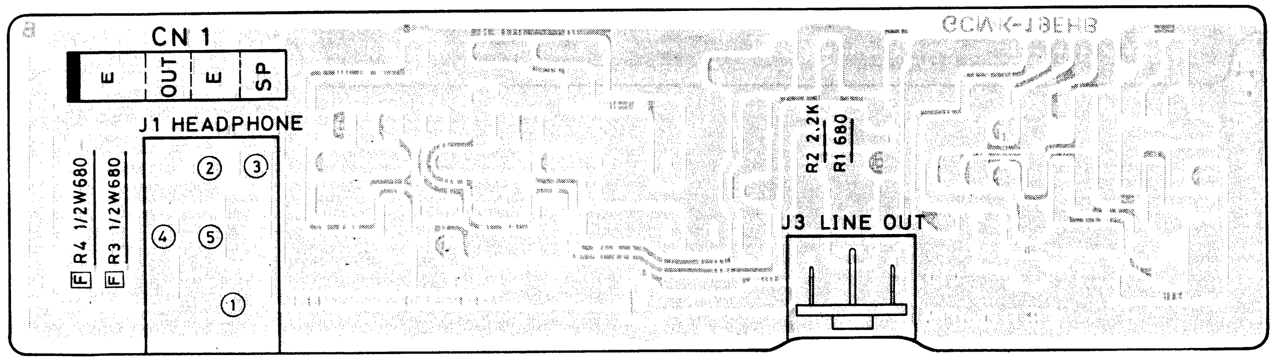
- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1, 2: 2SC1047C
  - Q3 ~ 5: 2SA830B
- DIODES
  - D1 ~ 12: MA165TA5VT
  - D13, 14, 16 ~ 23: SEL2210SLFM1 (red)
  - D15: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

JACK CIRCUIT DIAGRAM (JACK)


CN1
R2 2.2K
R1 680
F R3 1/2W 680
F R4 1/2W 680
E
OUT
E
SP
1
4
(E)
(OUT)
AS
Speaker ⊖
Speaker ⊕
① ② ③ ④ ⑤
J3
LINE OUT
J1
HEADPHONE JACK

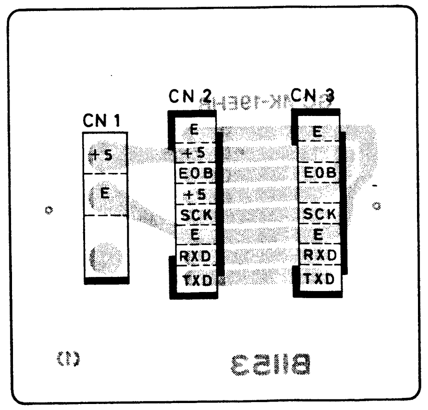
JACK CIRCUIT BOARD (JACK)

SXPGA11532


CN 1
E
OUT
E
SP
J1 HEADPHONE
F R4 1/2W680
F R3 1/2W680
① ② ③ ④ ⑤
R2 2.2K
R1 680
J3 LINE OUT

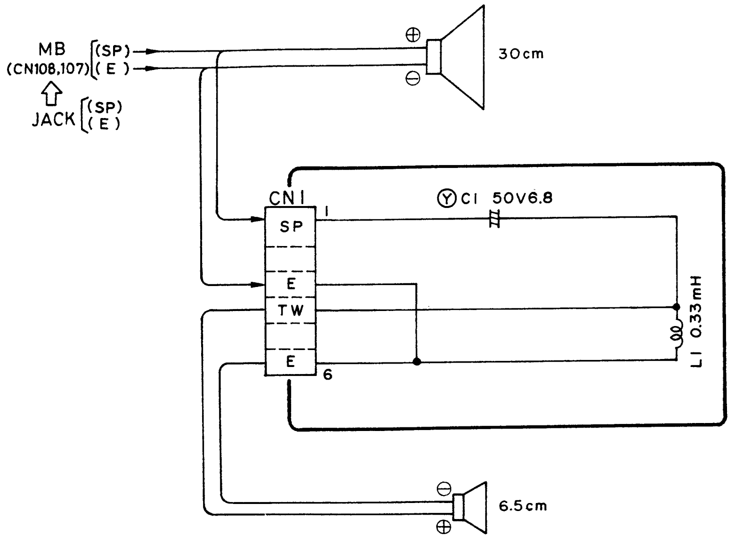
CONNECTOR CIRCUIT BOARD (CNC)

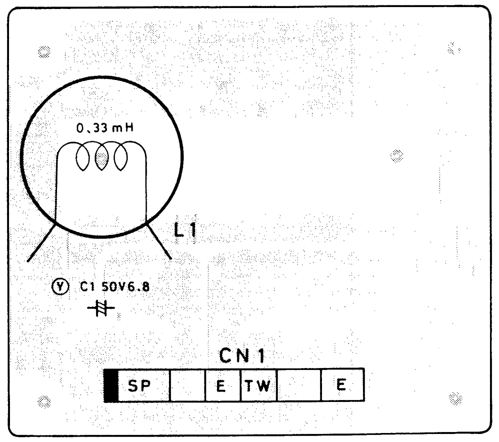
SXPGB11532


CN 1
+5
E
CN 2
E
+5
EOB
+5
SCK
E
RXD
TXD
CN 3
E
EOB
SCK
E
RXD
TXD

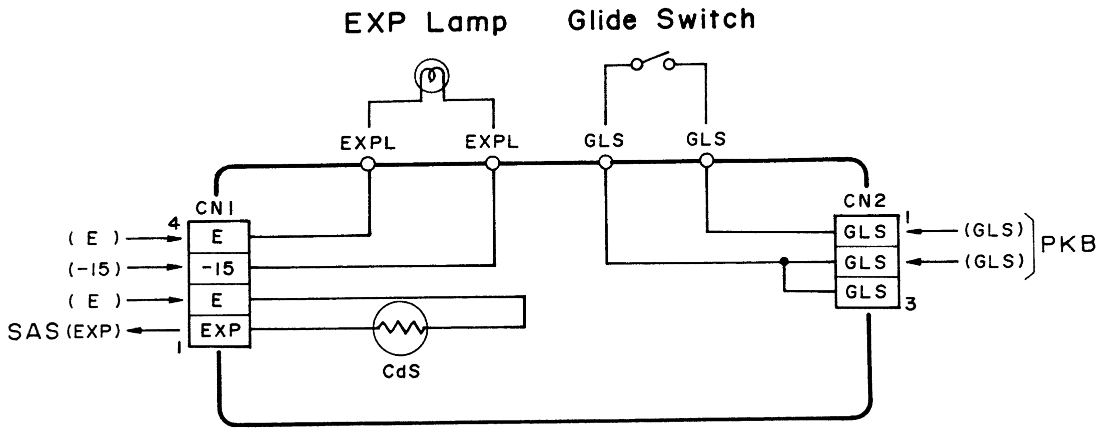
NETWORK CIRCUIT (NW)

SXPG11572

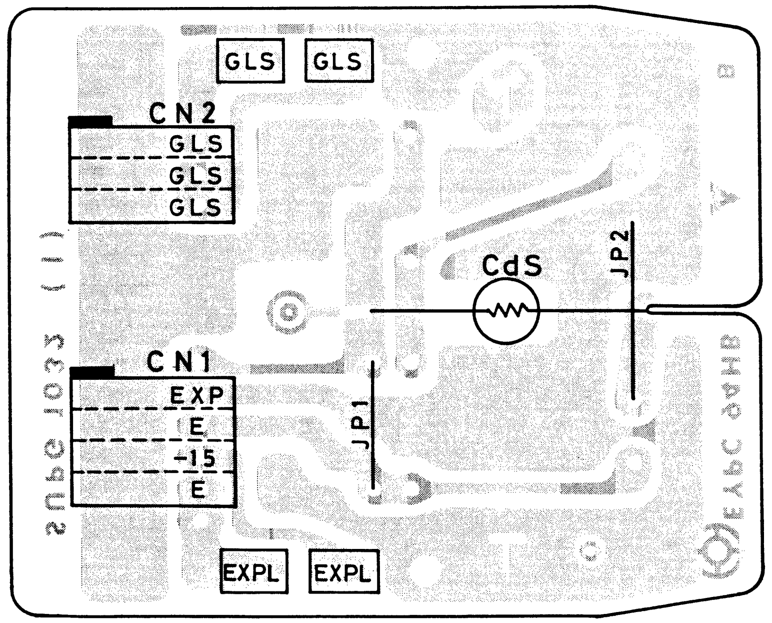

MB (CN108,107)
(SP)
(E)
JACK
(SP)
(E)
⊕
⊖
30cm
CN1
SP
E
TW
E
1
6
Ⓨ C1 50V6.8
L1 0.33mH
⊖
⊕
6.5cm


0.33mH
L1
Ⓨ C1 50V6.8
CN 1
SP
E
TW
E

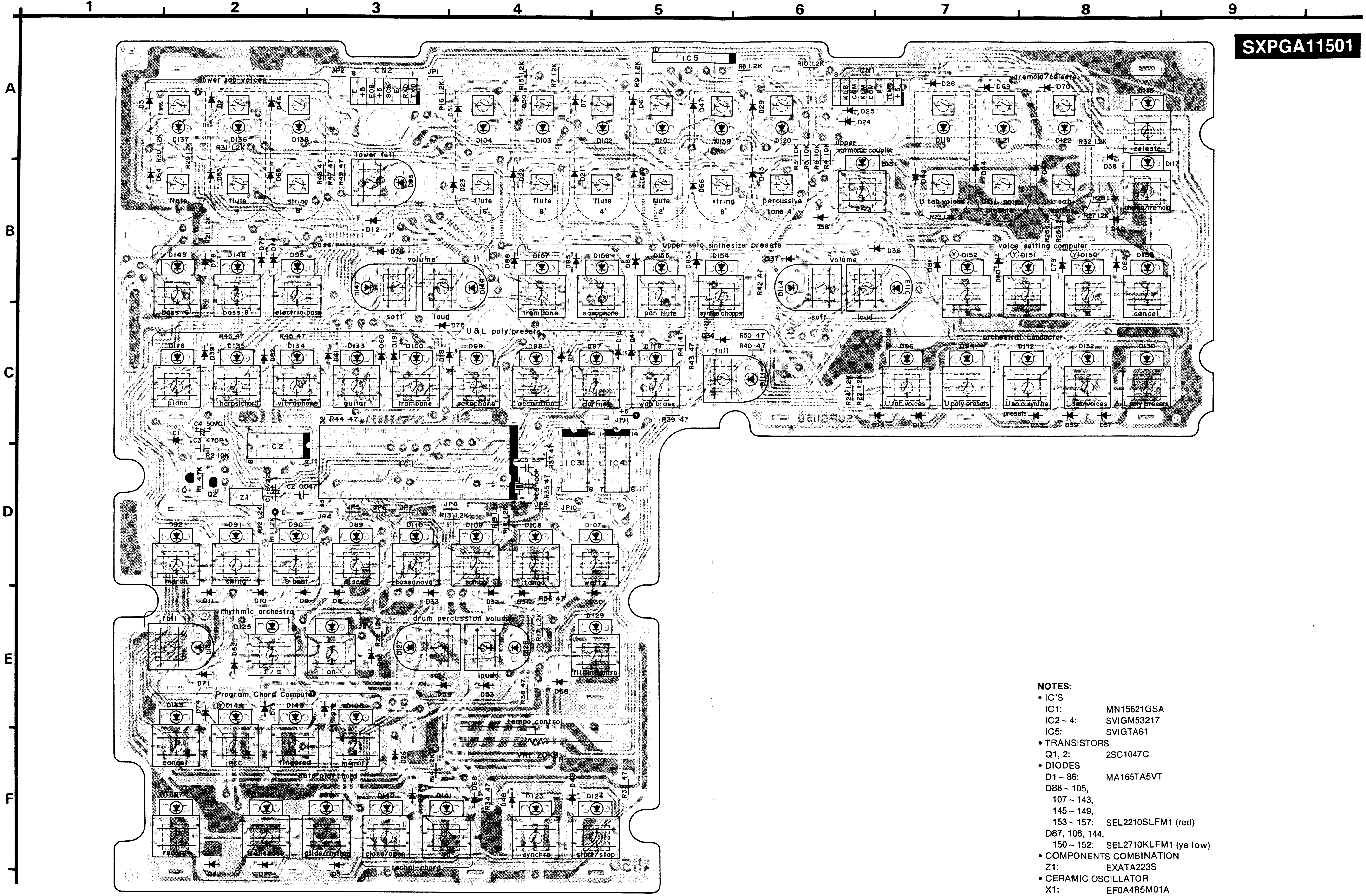
EXPRESSION CIRCUIT (EXP)


EXP Lamp
Glide Switch
EXPL
EXPL
GLS
GLS
CN1
(E)
(-15)
(E)
SAS (EXP)
4
E
-15
E
EXP
1
CdS
CN2
GLS
GLS
GLS
1
3
(GLS)
(GLS)
PKB

SXPG10322


GLS
GLS
CN 2
GLS
GLS
GLS
CdS
JP2
CN 1
EXP
E
-15
E
JP1
EXPL
EXPL

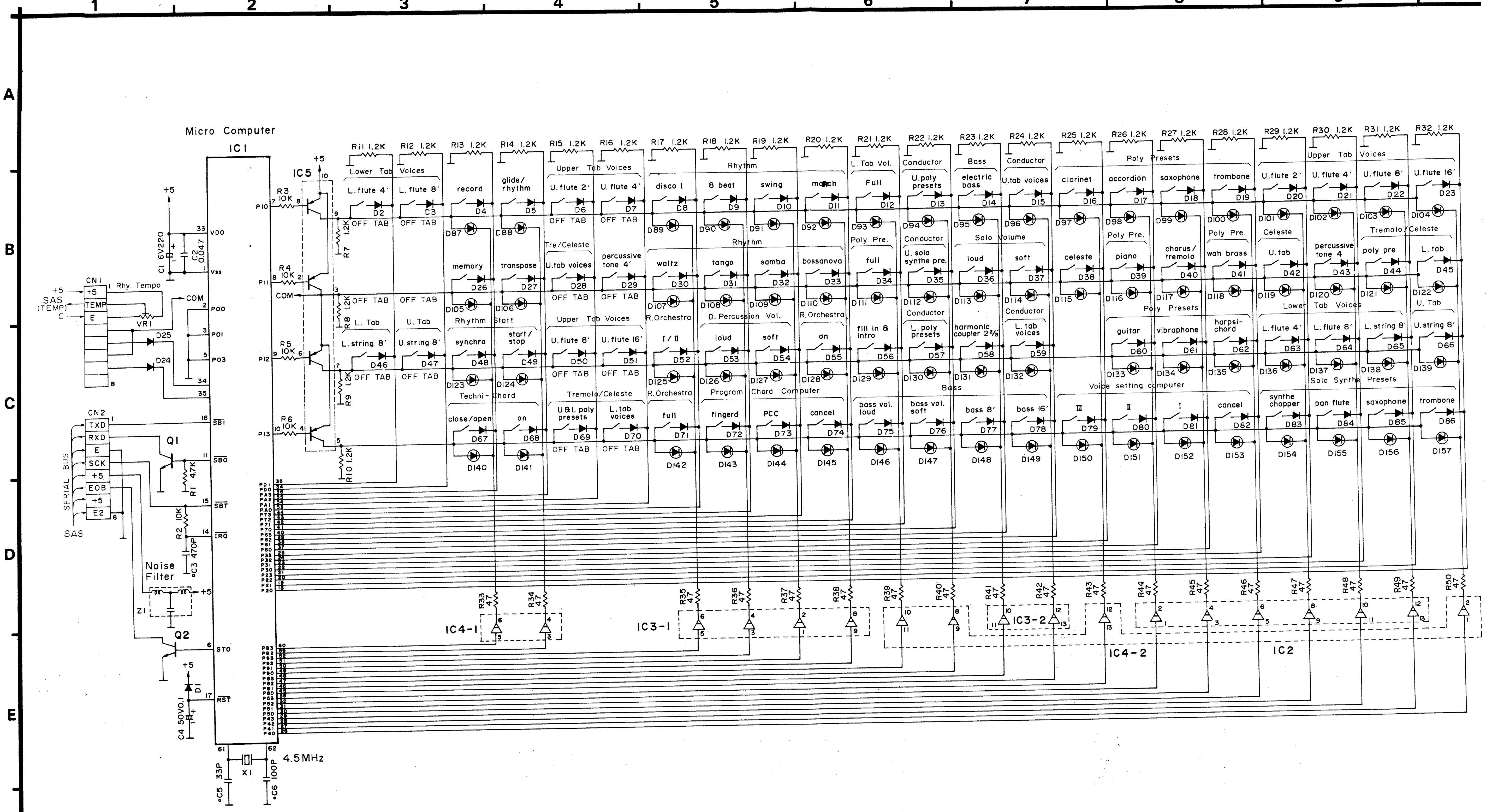
CONTROL PANEL SWITCH LEFT CIRCUIT BOARD (CPSL)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
SXPGA11501
lower tab voices
flute 8'
flute 4'
string 8'
lower full
flute 16'
flute 8'
flute 4'
flute 2'
string 8'
percussive tone 4'
upper harmonic coupler
tremolo/celeste
U tab voices
U&L poly presets
L tab voices
celeste
chorus/tremolo
bass
bass 16
bass 8
electric bass
volume
soft
loud
upper solo sinthesizer presets
trombone
saxophone
pan flute
synthe chopper
voice setting computer
cancel
U&L poly presets
piano
harpsichord
vibraphone
guitar
trombone
saxophone
accordion
clarinet
wah brass
full
orchestral conductor
U tab voices
U poly presets
U solo synthe presets
L tab voices
L poly presets
CN1
CN2
IC1
IC2
IC3
IC4
IC5
Z1
Q1
Q2
march
swing
8 beat
disco
bossanova
samba
tango
waltz
rhythmic orchestra
full
I/II
on
drum percussion volume
soft
loud
fill in/intro
Program Chord Computer
cancel
PCC
fingered
memory
auto play chord
tempo control
VR1 20KB
record
transpose
glide/rhythm
close/open
on
synchro
start/stop
techni-chord

NOTES:

- IC'S
  - IC1: MN15621GSA
  - IC2 ~ 4: SVIGM53217
  - IC5: SVIGTA61
- TRANSISTORS
  - Q1, 2: 2SC1047C
- DIODES
  - D1 ~ 86: MA165TA5VT
  - D88 ~ 105,
    107 ~ 143,
    145 ~ 149,
    153 ~ 157: SEL2210SLFM1 (red)
  - D87, 106, 144,
    150 ~ 152: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

CONTROL PANEL SWITCH LEFT CIRCUIT DIAGRAM (CPSL)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
IC5
+5
R3 10K
R4 10K
R5 10K
R6 10K
R7 1.2K
R8 1.2K
R9 1.2K
R10 1.2K
P10
P11
P12
P13
COM
VDO
Vss
P00
P01
P03
C1 6V220
C2 0.047
CN1
+5
TEMP
E
SAS (TEMP)
Rhy. Tempo
VR1
D24
D25
CN2
TXD
RXD
SCK
EOB
E2
SERIAL BUS
SAS
Q1
R1 4.7K
R2 10K
C3 470P
SBI
SBO
SBT
IRQ
Noise Filter
Z1
Q2
STO
RST
D1
C4 50V0.1
4.5MHz
X1
C5 33P
C6 100P
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
R15 1.2K
R16 1.2K
R17 1.2K
R18 1.2K
R19 1.2K
R20 1.2K
R21 1.2K
R22 1.2K
R23 1.2K
R24 1.2K
R25 1.2K
R26 1.2K
R27 1.2K
R28 1.2K
R29 1.2K
R30 1.2K
R31 1.2K
R32 1.2K
Lower Tab Voices
L. flute 4'
L. flute 8'
OFF TAB
record
glide/rhythm
Upper Tab Voices
U. flute 2'
U. flute 4'
Rhythm
disco I
8 beat
swing
march
L. Tab Vol.
Full
Conductor
U. poly presets
Bass
electric bass
U. tab voices
clarinet
Poly Presets
accordion
saxophone
trombone
Upper Tab Voices
U. flute 2'
U. flute 4'
U. flute 8'
U. flute 16'
memory
transpose
Tre/Celeste
U. tab voices
percussive tone 4'
waltz
tango
samba
bossanova
Poly Pre.
full
U. solo synthe pre.
Solo Volume
loud
soft
celeste
piano
chorus/tremolo
Poly Pre.
wah brass
Celeste
U. tab
percussive tone 4
Tremolo/Celeste
poly pre
L. tab
L. Tab
U. Tab
Rhythm Start
Upper Tab Voices
R. Orchestra
D. Percussion Vol.
R. Orchestra
L. poly presets
harmonic coupler 2⅔'
Conductor
L. tab voices
Poly Presets
Lower Tab Voices
U. Tab
L. string 8'
U. string 8'
synchro
start/stop
U. flute 8'
U. flute 16'
I/II
loud
soft
on
fill in & intro
guitar
vibraphone
harpsi-chord
L. flute 4'
L. flute 8'
L. string 8'
U. string 8'
Techni-Chord
Tremolo/Celeste
R. Orchestra
Program
Chord Computer
Bass
Voice setting computer
Solo Synthe Presets
close/open
on
U&L poly presets
L. tab voices
full
fingerd
PCC
cancel
bass vol. loud
bass vol. soft
bass 8'
bass 16'
III
II
I
cancel
synthe chopper
pan flute
saxophone
trombone
R33 47
R34 47
R35 47
R36 47
R37 47
R38 47
R39 47
R40 47
R41 47
R42 47
R43 47
R44 47
R45 47
R46 47
R47 47
R48 47
R49 47
R50 47
IC4-1
IC3-1
IC3-2
IC4-2
IC2

NOTES:
- IC'S

IC1:	MN15621GSA
IC2 ~ 4:	SVIGM53217
IC5:	SVIGTA61

- TRANSISTORS

Q1, 2:	2SC1047C

- DIODES

D1 ~ 86:	MA165TA5VT
D88 ~ 105, 107 ~ 143, 145 ~ 149, 153 ~ 157:	SEL2210SLFM1 (red)
D87, 106, 144, 150 ~ 152:	SEL2710KLFM1 (yellow)

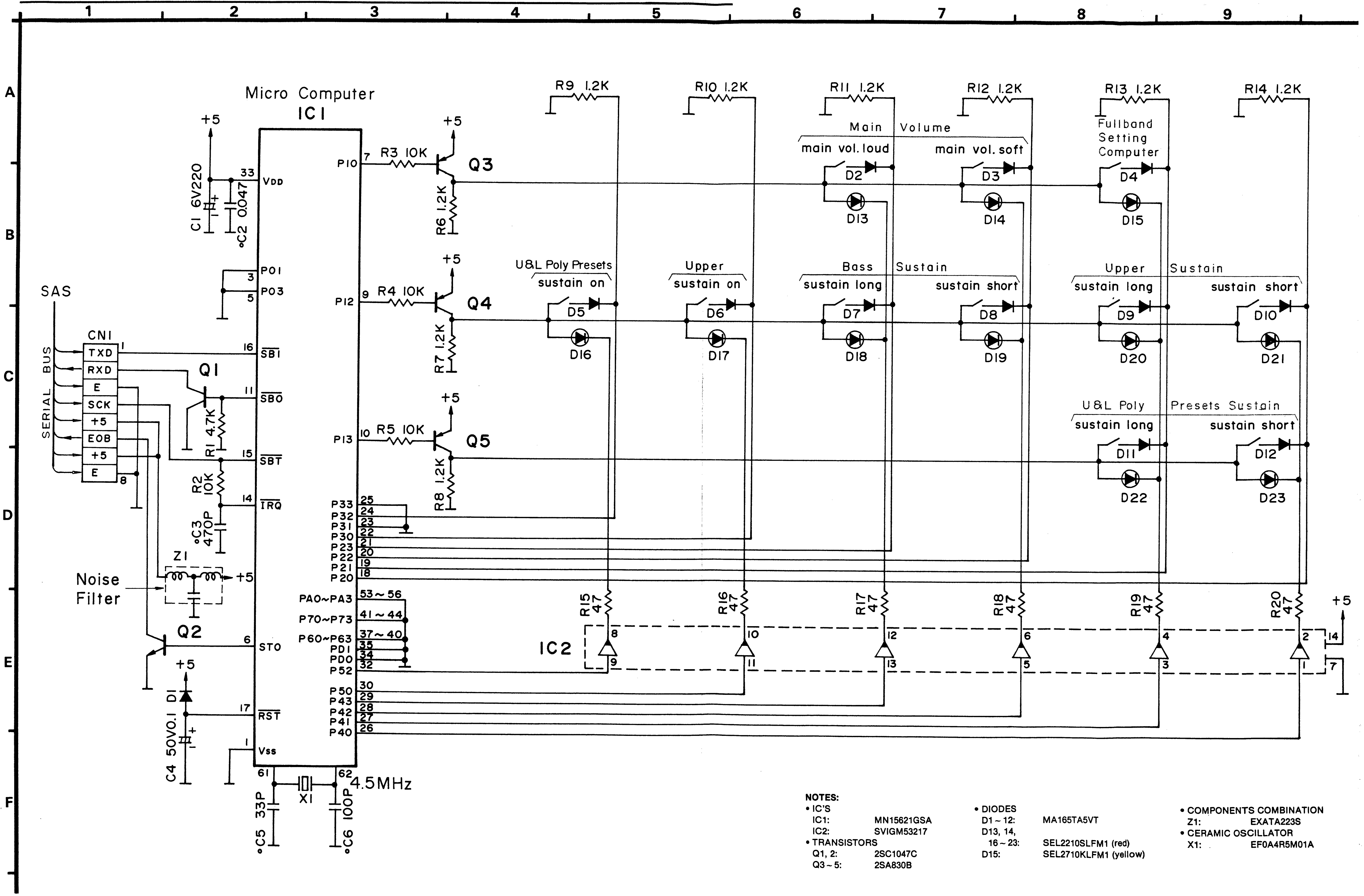
- COMPONENTS COMBINATION

Z1:	EXATA223S

- CERAMIC OSCILLATOR

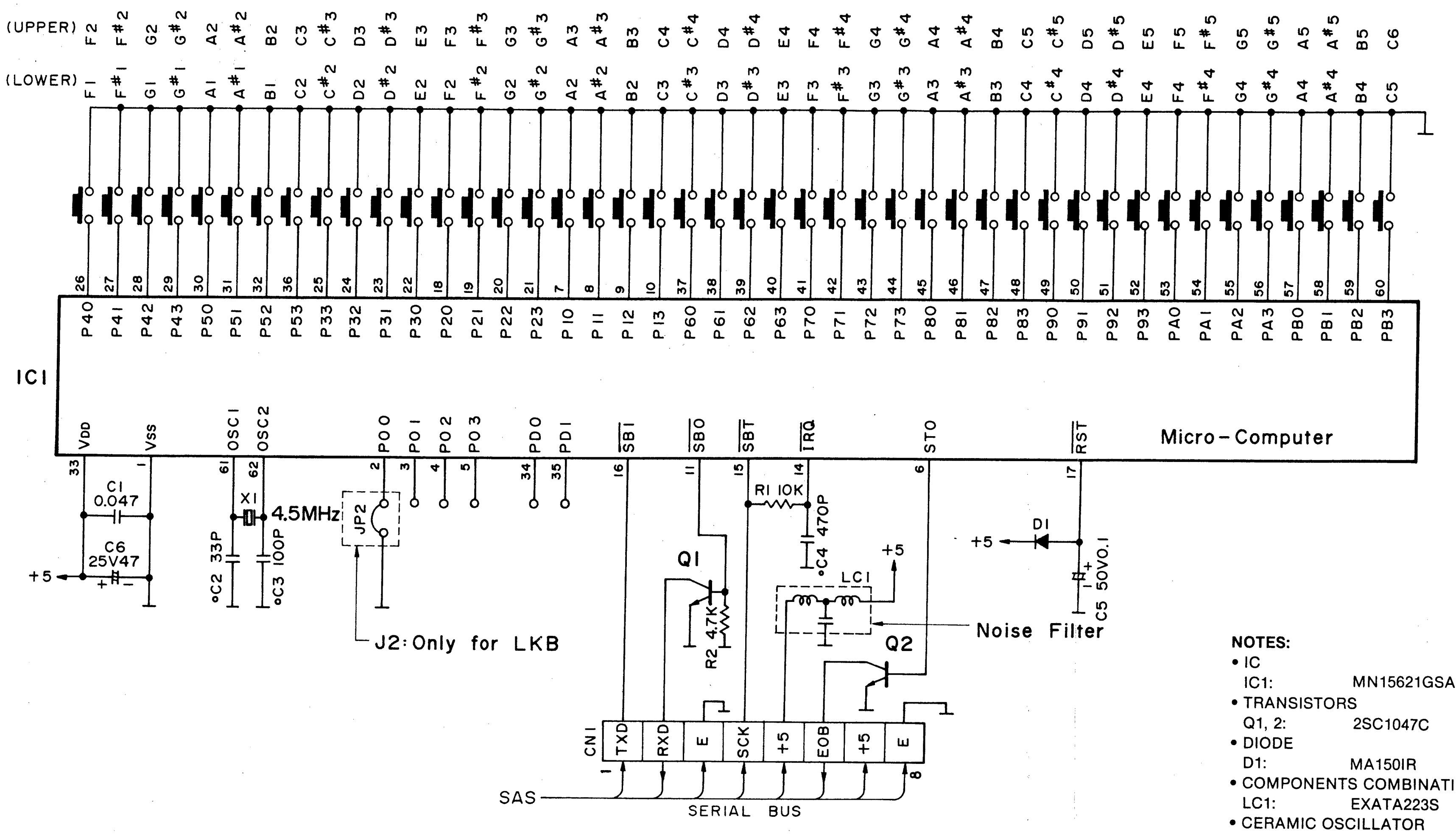
X1:	EF0A4R5M01A

CONTROL PANEL SWITCH RIGHT CIRCUIT DIAGRAM (CPSR)


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
Micro Computer
IC1
+5
C1 6V220
C2 0.047
33 VDD
3 P01
5 P03
SAS
SERIAL BUS
CN1
TXD
RXD
E
SCK
+5
EOB
+5
E
1
8
Q1
R1 4.7K
16 SB1
11 SB0
15 SBT
R2 10K
14 IRQ
C3 470P
Z1
Noise Filter
+5
Q2
6 STO
+5
D1
C4 50V0.1
17 RST
1 Vss
61
62
X1
4.5MHz
C5 33P
C6 100P
P10 7
R3 10K
Q3
R6 1.2K
P12 9
R4 10K
Q4
R7 1.2K
P13 10
R5 10K
Q5
R8 1.2K
P33 25
P32 24
P31 23
P30 22
P23 21
P22 20
P21 19
P20 18
PA0~PA3 53~56
P70~P73 41~44
P60~P63 37~40
PD1 35
PD0 34
P52 32
P50 30
P43 29
P42 28
P41 27
P40 26
R9 1.2K
R10 1.2K
R11 1.2K
R12 1.2K
R13 1.2K
R14 1.2K
Main Volume
main vol. loud
main vol. soft
Fullband Setting Computer
D2
D3
D4
D13
D14
D15
U&L Poly Presets sustain on
Upper sustain on
Bass Sustain
sustain long
sustain short
Upper Sustain
sustain long
sustain short
D5
D6
D7
D8
D9
D10
D16
D17
D18
D19
D20
D21
U&L Poly Presets Sustain
sustain long
sustain short
D11
D12
D22
D23
R15 47
R16 47
R17 47
R18 47
R19 47
R20 47
IC2
8
9
10
11
12
13
6
5
4
3
2
1
14
7
+5

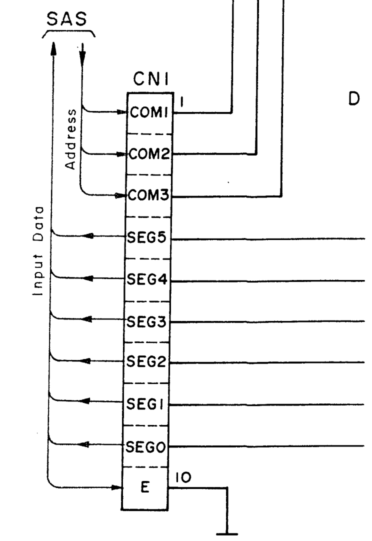
NOTES:
- IC'S
  - IC1: MN15621GSA
  - IC2: SVIGM53217
- TRANSISTORS
  - Q1, 2: 2SC1047C
  - Q3 ~ 5: 2SA830B
- DIODES
  - D1 ~ 12: MA165TA5VT
  - D13, 14, 16 ~ 23: SEL2210SLFM1 (red)
  - D15: SEL2710KLFM1 (yellow)
- COMPONENTS COMBINATION
  - Z1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

UPPER & LOWER KEYBOARD CIRCUIT DIAGRAM (UKB & LKB)

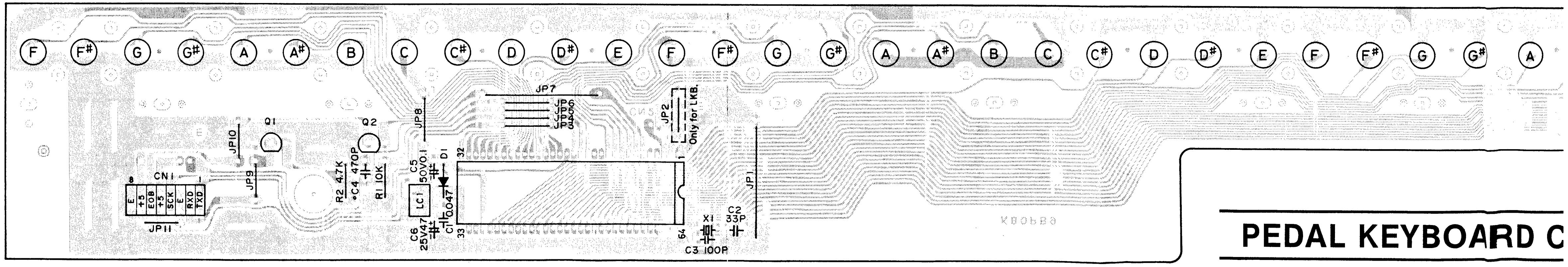

(UPPER)
(LOWER)
IC1
Micro-Computer
VDD
VSS
OSC1
OSC2
P00
P01
P02
P03
PD0
PD1
SBI
SBO
SBT
IRQ
STO
RST
C1 0.047
C6 25V47
+5
X1
4.5MHz
C2 33P
C3 100P
JP2
J2: Only for LKB
R1 10K
C4 470P
LC1
Noise Filter
Q1
Q2
R2 4.7K
D1
C5 50V0.1
CN1
TXD
RXD
E
SCK
+5
EOB
SAS
SERIAL BUS

NOTES:
- IC
  - IC1: MN15621GSA
- TRANSISTORS
  - Q1, 2: 2SC1047C
- DIODE
  - D1: MA150IR
- COMPONENTS COMBINATIONS
  - LC1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

PEDAL KEYBOARD CIRC

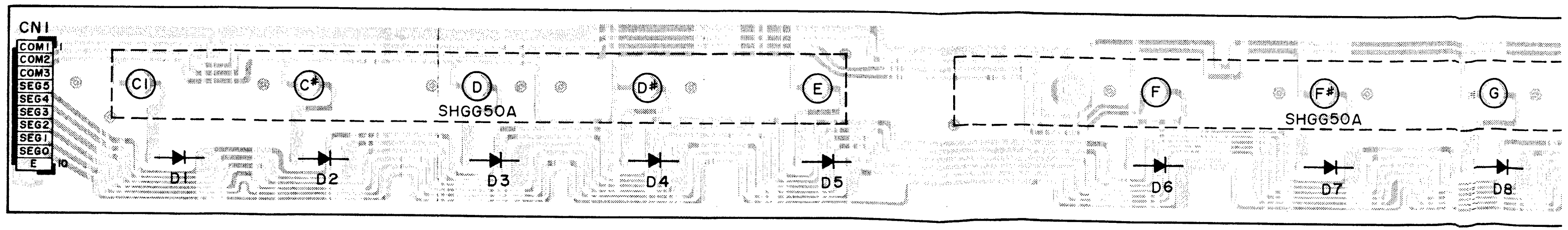

SAS
Input Data
Address
CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
1
10
D

UPPER & LOWER KEYBOARD CIRCUIT BOARD (UKB & LKB)

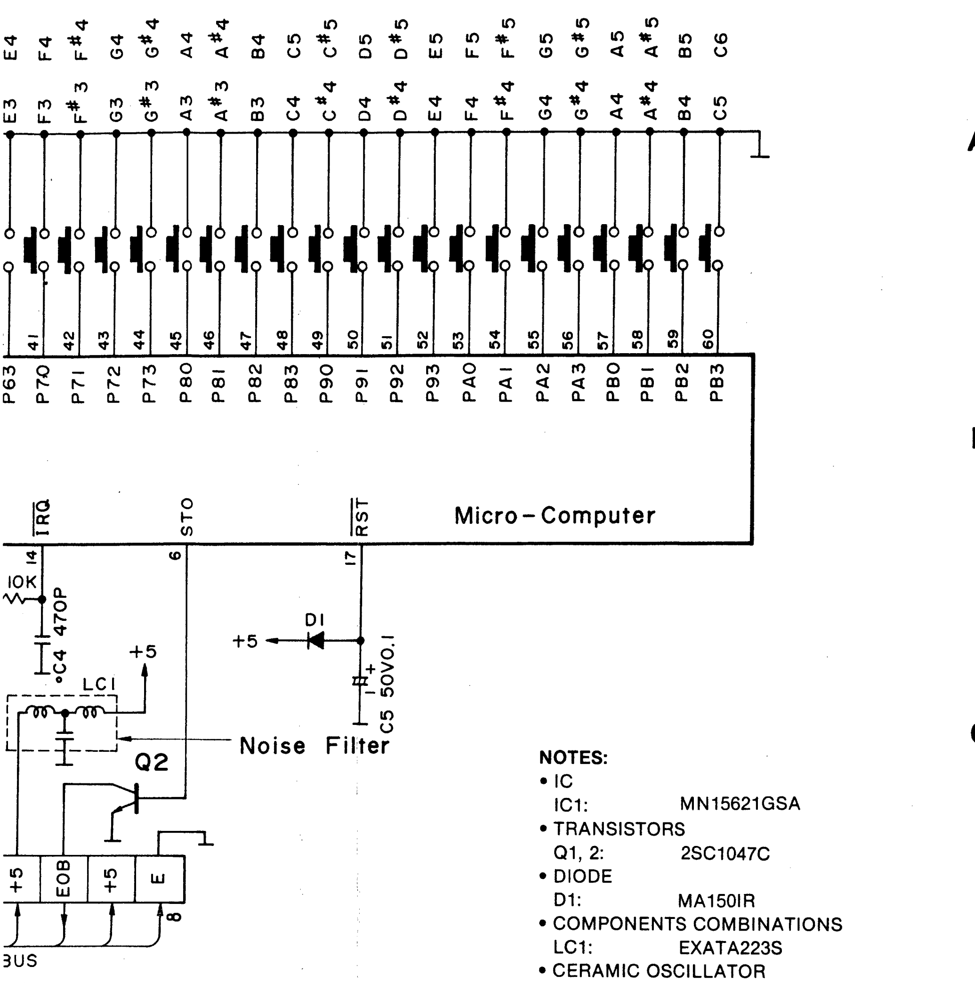

F
F#
G
G#
A
A#
B
C
C#
D
D#
E
JP7
JP6
JP5
JP4
JP3
JP2
Only for LKB.
JP8
JP10
JP9
JP1
JP11
Q1
Q2
CN1
R2 4.7K
C4 470P
R1 10K
C5 50V0.1
D1
LC1
C1 0.047
C6 25V47
C2 33P
X1
C3 100P
E
EOB
+5
SCK
RXD
TXD

NOTES:
- IC
  - IC1: MN15621GSA
- TRANSISTORS
  - Q1, 2: 2SC1047C
- DIODE
  - D1: MA150IR
- COMPONENTS COMBINATIONS
  - LC1: EXATA223S
- CERAMIC OSCILLATOR
  - X1: EF0A4R5M01A

PEDAL KEYBOARD C

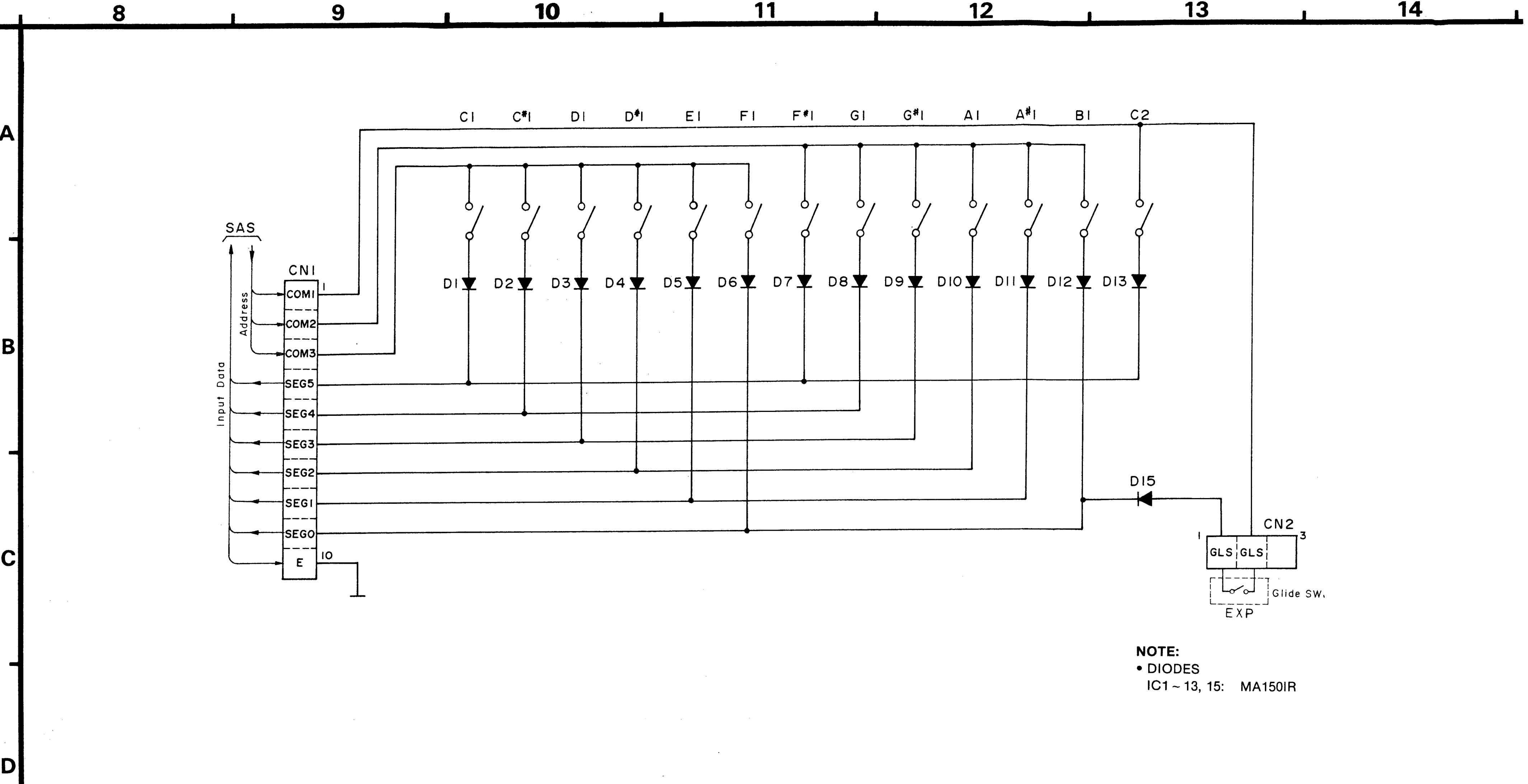

CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
C1
C#
D
D#
E
F
F#
G
SHGG50A
D1
D2
D3
D4
D5
D6
D7
D8

& LKB)


5
6
7
E4 F4 F#4 G4 G#4 A4 A#4 B4 C5 C#5 D5 D#5 E5 F5 F#5 G5 G#5 A5 A#5 B5 C6
E3 F3 F#3 G3 G#3 A3 A#3 B3 C4 C#4 D4 D#4 E4 F4 F#4 G4 G#4 A4 A#4 B4 C5
41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60
P63 P70 P71 P72 P73 P80 P81 P82 P83 P90 P91 P92 P93 PA0 PA1 PA2 PA3 PB0 PB1 PB2 PB3
IRQ
STO
RST
Micro-Computer
14
6
17
10K
C4 470P
+5
D1
+5
C5 50V0.1
LC1
Noise Filter
Q2
+5
E0B
+5
E
8
BUS

NOTES:
- IC
  IC1: MN15621GSA
- TRANSISTORS
  Q1, 2: 2SC1047C
- DIODE
  D1: MA150IR
- COMPONENTS COMBINATIONS
  LC1: EXATA223S
- CERAMIC OSCILLATOR
  X1: EF0A4R5M01A

PEDAL KEYBOARD CIRCUIT DIAGRAM (PKB)

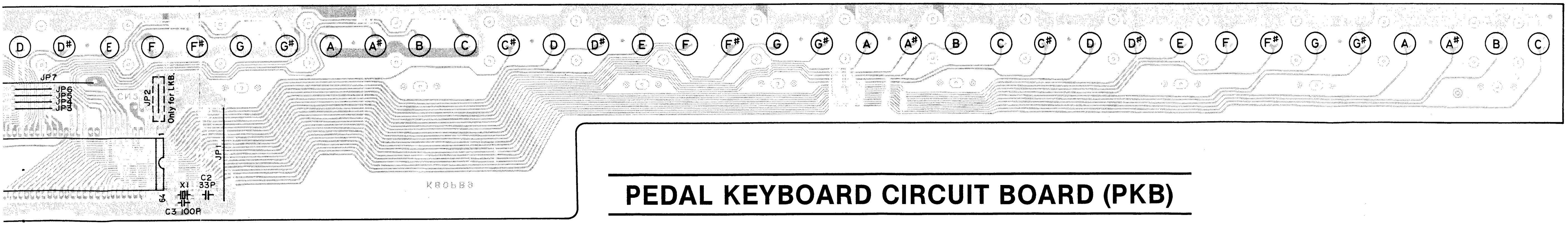

8
9
10
11
12
13
14
A
B
C
D
C1 C#1 D1 D#1 E1 F1 F#1 G1 G#1 A1 A#1 B1 C2
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13
SAS
Address
Input Data
CN1
COM1
COM2
COM3
SEG5
SEG4
SEG3
SEG2
SEG1
SEG0
E
1
10
D15
CN2
1
3
GLS
GLS
Glide SW.
EXP

NOTE:
- DIODES
  IC1 ~ 13, 15: MA150IR

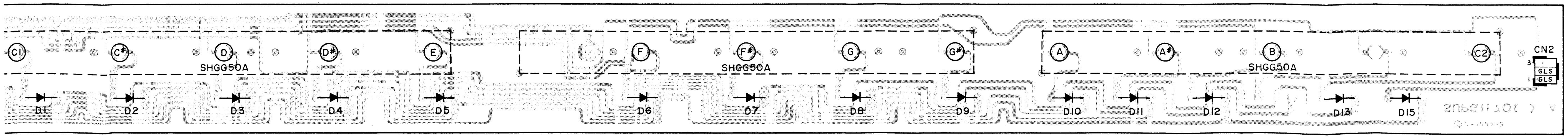
RD (UKB & LKB)

UKB: K80VPB4

LKB: K80VPB2


D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C C# D D# E F F# G G# A A# B C
JP7
JP6
JP5
JP4
JP3
JP2
Only for LKB.
JP1
64
1
X1
C2 33P
C3 100P
K80PB3

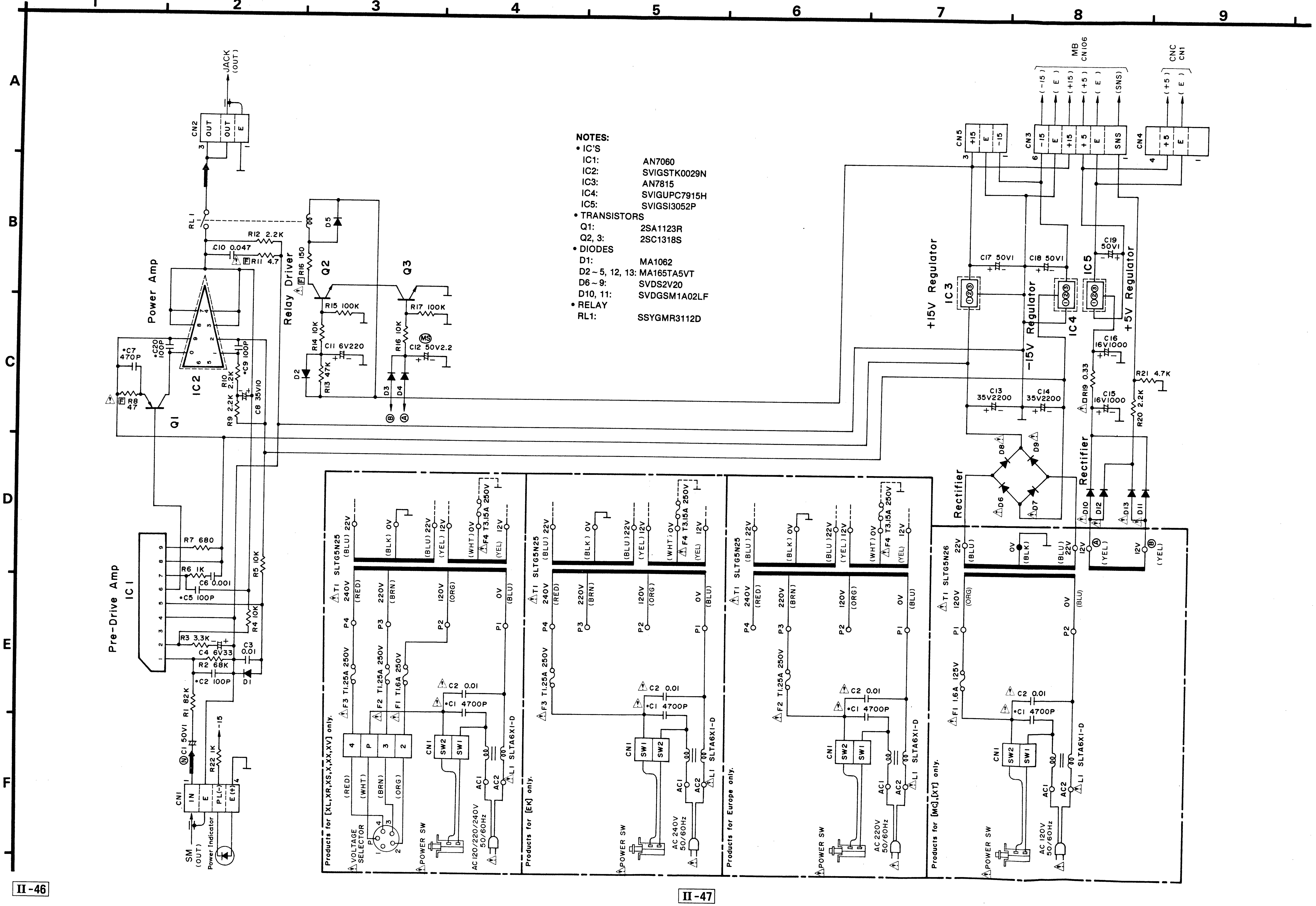
PEDAL KEYBOARD CIRCUIT BOARD (PKB)


C1 C#1 D1 D#1 E1 F1 F#1 G1 G#1 A1 A#1 B1 C2
SHGG50A
SHGG50A
SHGG50A
D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11 D12 D13 D15
CN2
3
1
GLS
GLS

SXPG1170

NOTE:
- DIODES
  IC1 ~ 13,15: MA150I

AMP & POWER SUPPLY CIRCUIT DIAGRAM (AS)



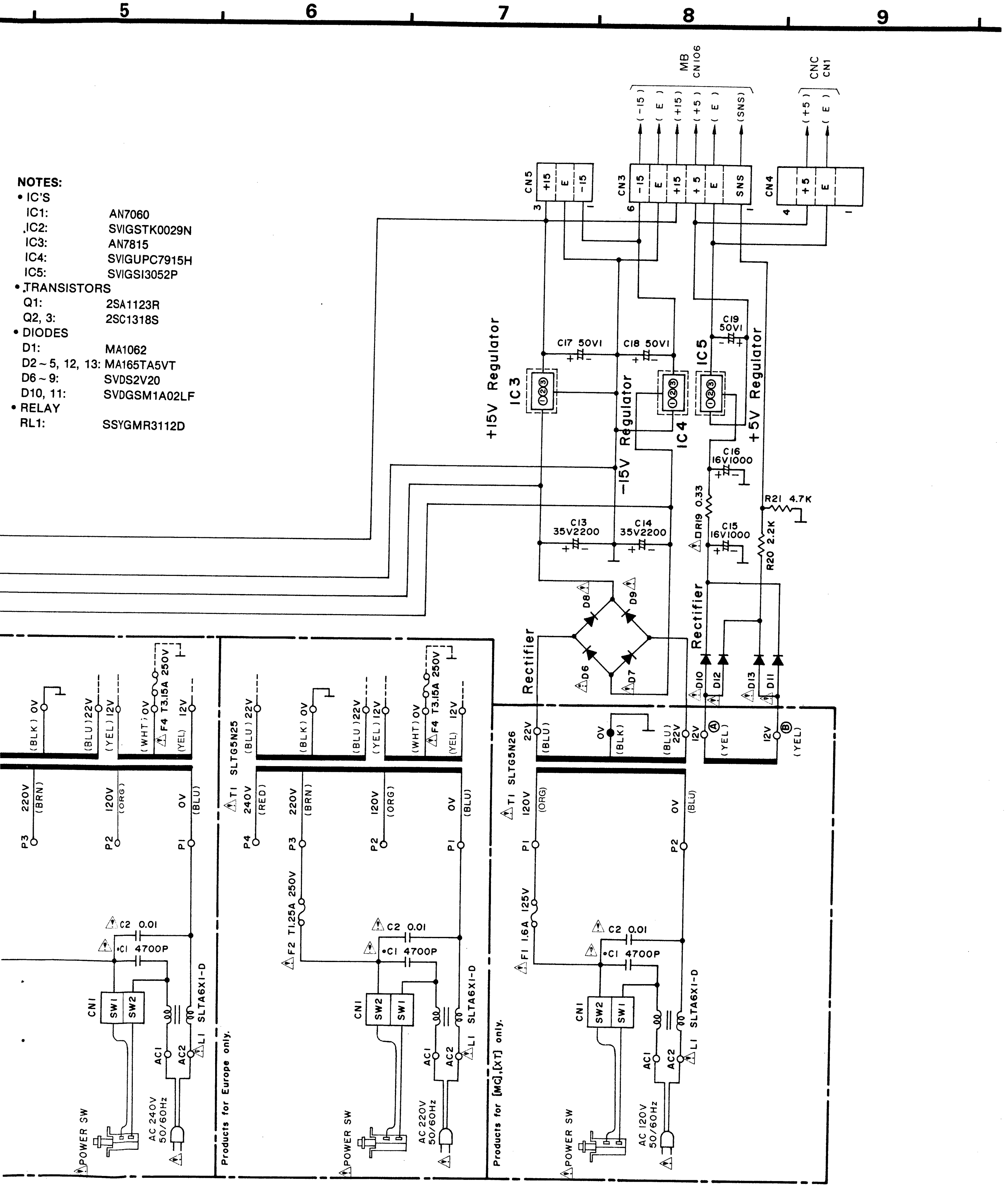
1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
JACK (OUT)
CN2
OUT
E
RL1
R12 2.2K
C10 0.047
R11 4.7
Power Amp
IC2
•C7 470P
•C20 100P
•C9 100P
R10 2.2K
C8 35V10
R9 2.2K
R8 47
Q1
Relay Driver
R16 150
Q2
Q3
D5
R15 100K
R17 100K
R14 10K
C11 6V220
R16 10K
C12 50V2.2
D2
R13 47K
D3
D4
Pre-Drive Amp
IC1
R7 680
R6 1K
C6 0.001
•C5 100P
R5 10K
R4 10K
R3 3.3K
C4 6V33
C3 0.01
R2 68K
•C2 100P
D1
R1 82K
C1 50V1
R22 1K
-15
CN1
IN
E
PL(-)
E(+)
SM (OUT)
Power Indicator
+15V Regulator
IC3
-15V Regulator
IC4
IC5
+5V Regulator
C17 50V1
C18 50V1
C19 50V1
C16 16V1000
C15 16V1000
R19 0.33
R21 4.7K
R20 2.2K
C13 35V2200
C14 35V2200
Rectifier
D6
D7
D8
D9
D10
D11
D12
D13
CN5
+15
E
-15
CN3
+5
SNS
CN4
MB CN106
CNC CN1
T1 SLTG5N25
T1 SLTG5N26
(BLU) 22V
(BLK) 0V
(BLU) 22V
(YEL) 12V
(WHT) 0V
F4 T3.15A 250V
(YEL) 12V
240V (RED)
220V (BRN)
120V (ORG)
0V (BLU)
P1
P2
P3
P4
F1 T1.6A 250V
F2 T1.25A 250V
F3 T1.25A 250V
F1 1.6A 125V
C2 0.01
•C1 4700P
SW1
SW2
L1 SLTA6X1-D
AC1
AC2
VOLTAGE SELECTOR
POWER SW
AC 120/220/240V 50/60Hz
AC 240V 50/60Hz
AC 220V 50/60Hz
AC 120V 50/60Hz
Products for [XL,XR,XS,XA,XX,XV] only.
Products for [EK] only.
Products for Europe only.
Products for [MC],[XT] only.

NOTES:

- IC'S
  - IC1: AN7060
  - IC2: SVIGSTK0029N
  - IC3: AN7815
  - IC4: SVIGUPC7915H
  - IC5: SVIGSI3052P
- TRANSISTORS
  - Q1: 2SA1123R
  - Q2, 3: 2SC1318S
- DIODES
  - D1: MA1062
  - D2 ~ 5, 12, 13: MA165TA5VT
  - D6 ~ 9: SVDS2V20
  - D10, 11: SVDGSM1A02LF
- RELAY
  - RL1: SSYGMR3112D

)

NOTES:
- IC'S
  - IC1: AN7060
  - IC2: SVIGSTK0029N
  - IC3: AN7815
  - IC4: SVIGUPC7915H
  - IC5: SVIGSI3052P
- TRANSISTORS
  - Q1: 2SA1123R
  - Q2, 3: 2SC1318S
- DIODES
  - D1: MA1062
  - D2 ~ 5, 12, 13: MA165TA5VT
  - D6 ~ 9: SVDS2V20
  - D10, 11: SVDGSM1A02LF
- RELAY
  - RL1: SSYGMR3112D



5
6
7
8
9
MB CN106
CNC CN1
(-15) (E) (+15) (+5) (E) (SNS)
(+5) (E)
CN5 +15 E -15
CN3 -15 E +15 +5 E SNS
CN4 +5 E
C17 50V1
C18 50V1
C19 50V1
+15V Regulator IC3
-15V Regulator IC4
IC5 +5V Regulator
C16 16V1000
R21 4.7K
R19 0.33
C13 35V2200
C14 35V2200
C15 16V1000
R20 2.2K
D8 D9 D6 D7
Rectifier
D10 D12 D13 D11
Rectifier
Ⓐ Ⓑ
22V (BLU)
0V (BLK)
22V (BLU)
12V (YEL)
(BLK) 0V
(BLU) 22V
(YEL) 12V
(WHT) 0V
F4 T3.15A 250V
12V (YEL)
T1 SLTG5N25
T1 SLTG5N26
240V (RED)
220V (BRN)
120V (ORG)
0V (BLU)
P1 P2 P3 P4
F2 T1.25A 250V
F1 1.6A 125V
C2 0.01
•C1 4700P
CN1 SW1 SW2
AC1 AC2
L1 SLTA6X1-D
POWER SW
AC 240V 50/60Hz
AC 220V 50/60Hz
AC 120V 50/60Hz
Products for Europe only.
Products for [MC],[XT] only.

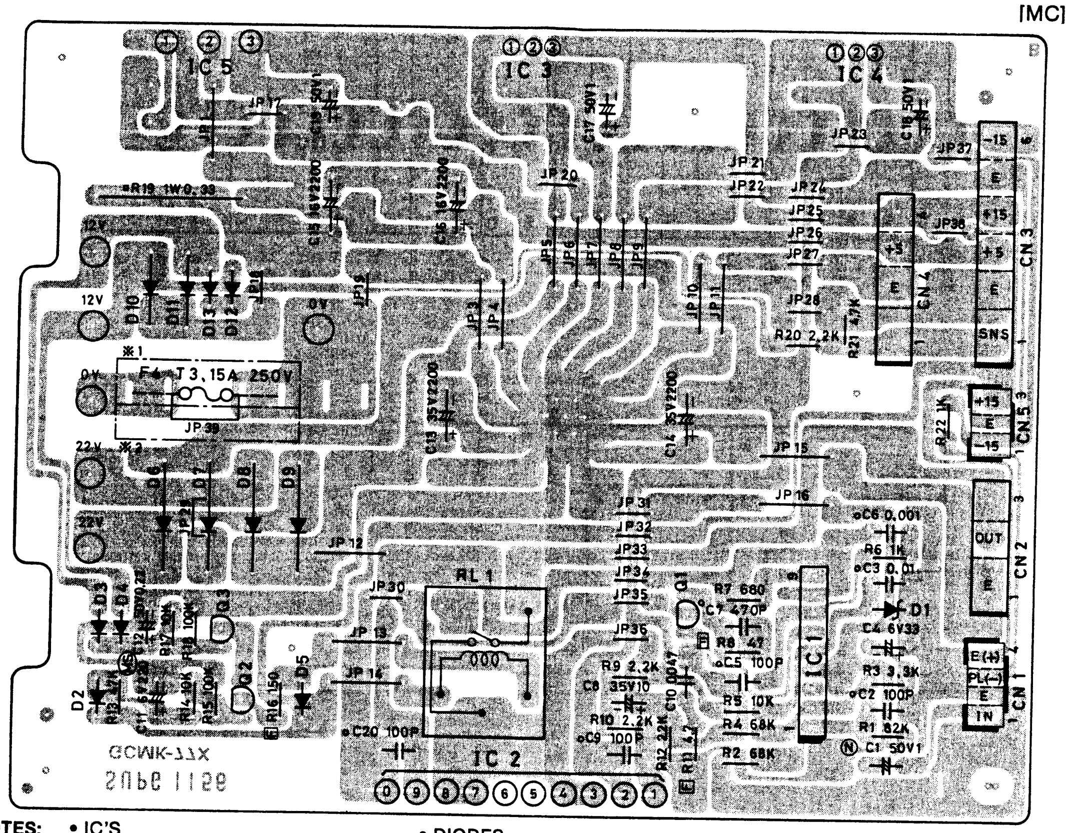
AMP & POWER SUPPLY CIRCUIT BOARD (AS)

SXPG11561

*1…F4 T3.15A 250V

[MC], [XT] **SXPG11562**

*2…JP39: Products for [MC], [XT] only.

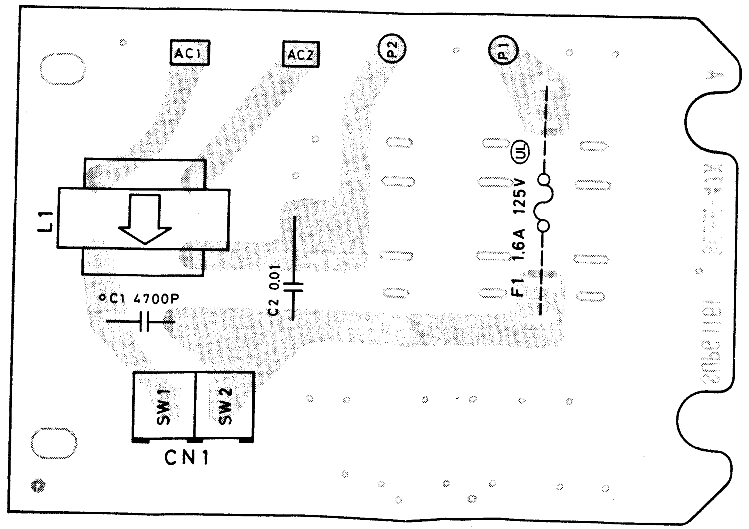


1
2
3
4
5
A
B
C
D
IC 5
IC 3
IC 4
IC 1
IC 2
RL 1
F4 T3.15A 250V
JP39
CN 3
CN 4
CN 5 3
CN 2
CN 1
-15 E +15 +5 E SNS
+15 E -15
OUT E
IE(+) PL(-) E IN
R21 4.7K
R20 2.2K
R22 1K
12V
0V
22V
Q1 Q2 Q3
D1 D2 D5 D6 D7 D8 D9 D10 D11 D12 D13
C6 0.001
R6 1K
C3 0.01
R7 680
C7 470P
R8 47
C4 6V33
C5 100P
R3 3.3K
R5 10K
C2 100P
R4 68K
R1 82K
R2 68K
C1 50V1
R9 2.2K
C8 35V10
R10 2.2K
C9 100P
C20 100P
R16 150
R19 1W0.33

NOTES:
- IC'S
  - IC1: AN7060
  - IC2: SVIGSTK0029N
  - IC3: AN7815
  - IC4: SVIGUPC7915H
  - IC5: SVIGSI3052P
- DIODES
  - D1: MA1062
  - D2 ~ 5, 12, 13: MA165TA5VT
  - D6 ~ 9: SVDS2V20
  - D10, 11: SVDGSM1A02LF
- TRANSISTORS
  - Q1: 2SA1123R
  - Q2, 3: 2SC1318S
- RELAY
  - RL1: SSYGMR3112D

AC POWER SUPPLY CIRCUIT BOARD (ACP)

* products for [MC], [XT] only. **SXPG11612**



E
F
AC1
AC2
P2
P1
L1
•C1 4700P
C2 0.01
F1 1.6A 125V
SW1 SW2
CN1

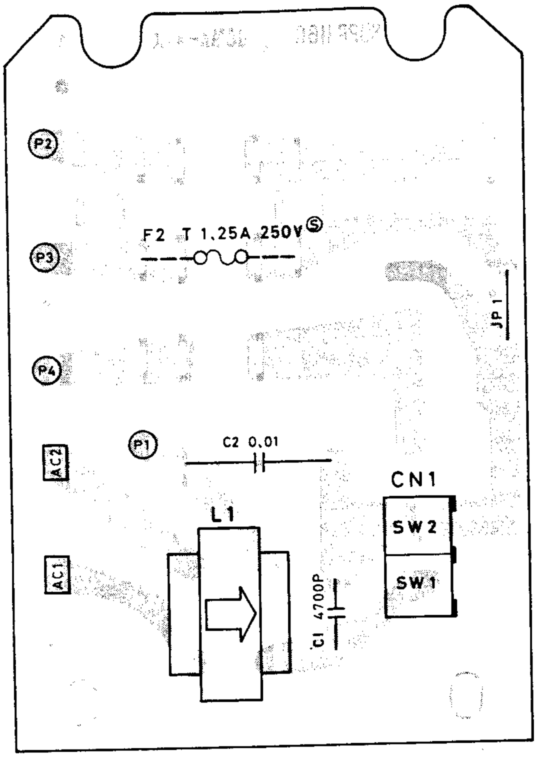
AC POWER SUPPLY CIRCUIT BOARD (ACP)

1 2 3 4 5

A B C D E F

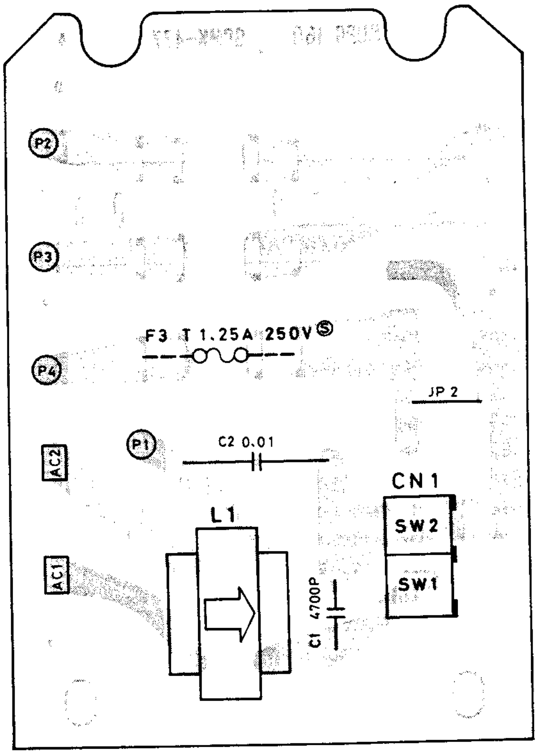
* Products for Europe only.

SXPG11601


P2
F2 T 1,25A 250V Ⓢ
P3
JP1
P4
AC2
P1
C2 0,01
CN1
SW2
SW1
L1
AC1
C1 4700P

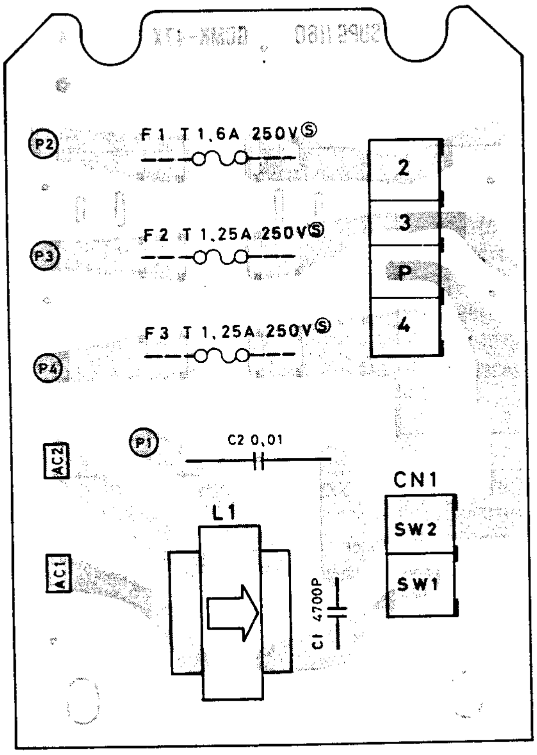
* Products for [EK] only.

SXPG11602


P2
P3
F3 T 1,25A 250V Ⓢ
P4
JP2
AC2
P1
C2 0,01
CN1
SW2
SW1
L1
AC1
C1 4700P

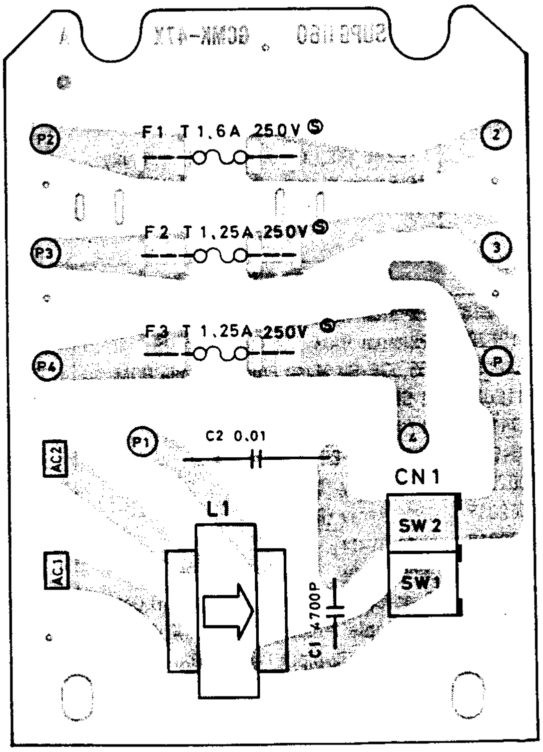
* Products for SX-E22 [XL], [XR], [XS], [X], [XX], and [XV] only.

SXPG11603


P2
F1 T 1,6A 250V Ⓢ
2
3
P
4
P3
F2 T 1,25A 250V Ⓢ
P4
F3 T 1,25A 250V Ⓢ
AC2
P1
C2 0,01
CN1
SW2
SW1
L1
AC1
C1 4700P

* Products for SX-E22L [XL]; [XR], [XS], [X], [XX], and [XV] only.

SXPG11604


P2
F1 T 1,6A 250V Ⓢ
2
P3
F2 T 1,25A 250V Ⓢ
3
P4
F3 T 1,25A 250V Ⓢ
P
4
AC2
P1
C2 0,01
CN1
SW2
SW1
L1
AC1
C1 4700P

REPLACEMENT PARTS LIST...Electrical Parts

Notes:

1. Printed circuit boards are supplied only during the period of production. Tone generator module P.C.B. (SXPG11262) and rhythm module P.C.B. (SXPG11691) are supplied the same as for ordinary electrical parts.
2. Important safety notice
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
3. The "S" mark is service standard parts and may differ from production parts.
4. ○ mark are new parts.
5. This parts list is to be used for both SX-E22 and SX-E22L.
   For special parts, check the Model No. and specify the part No. when placing an order.
   Those without Model No. are common part No.
6. For part No. with area mark, check the area when placing an order.

■ ELECTRICAL PARTS

PRINTED CIRCUIT BOARDS

	Part No.	Description	Per/Set
○	SXPG11262	Tone Generator Module	1
○	SXPG11272	System Assigner	1
○	SXPGA11284	Organ	1
○	SXPGB11282	Tone Generator	1
○	SXPGA11391	Orchestral & Percussive Presets	1
○	SXPGB11391	Selector & Mixing	1
○	SXPG11381	Bass & Drum Percussion	1
○	SXPG11691	Rhythm Module	1
○	SXPG11682	Accompaniment	1
○	SXPG11324	Solo Synthe Presets	1
○	SXPG11401	Celeste & Tremolo	1
○	SXPG11411	Mother Board	1
○	SXPGA11501	Control Panel Switch Left	1
○	SXPGB11501	Control Panel Switch Right	1
○	SXPGA11532	Jack	1
○	SXPGB11532	Connector	1
○	SXPG11572	Network	1
○	SXPG11701	Pedal Keyboard	1
○	K80VPB2	Lower Keyboard	1
○	K80VPB4	Upper Keyboard	1
	SXPG10322	Expression	1
○	SXPG11561	Amp & Power Supply	1
○	SXPG11562	Amp & Power Supply (MC, XT) only	1
○	SXPG11601	AC Power Supply, Europe only	1
○	SXPG11602	AC Power Supply, (EK) only	1
○	SXPG11603	AC Power Supply, E22 (XL, XR, XS, X, XX, XV) only	1
○	SXPG11604	AC Power Supply, E22L (XL, XR, XS, X, XX, XV) only	1
○	SXPG11612	AC Power Supply, (MC, XT) only	1

INTEGRATED CIRCUITS

	Part No.	Description		Per/Set
○	SVIG23128218	External ROM	SAS	1
○	SVIGM512820R	External RAM, 16,384-Bit CMOS	SAS	1
○	SVIG2364E059	65,536-Bit Mask Programmable ROM	SPS	1
○	SVIG7811G028	1 Chip, 8-Bit Microcomputer	SAS	1
○	SVIGM8041111	1 Chip, 8-Bit Microcomputer	OP	1
○	SVIGM8049569	1 Chip, 8-Bit Microcomputer	SPS	1
○	SVIG65002014	Gate Array (LAS)	SAS	1
○	SVIG65002017	Gate Array (DAC)	SAS	1
○	SVIG65002018	Gate Array	SM	1
○	SVIG65002019	Gate Array	SPS	1
	SVIGM74LS00	Quadruple 2-Input Positive NAND Gates	SAS	1
	SVIGM74LS02	Quadruple 2-Input Positive NOR Gates	SAS	1
	SVIGM74LS32	Quadruple 2-Input Positive OR Gates	SAS	1
	SVIGM74LS138	Decoder	SAS	2
	SVIGMSM4011	Quadruple 2-Input NAND Gates	CSM, BD	4
	SVIGTC40H004	Hex Inverters		4
○	SVIGTC40H374	Octal D-Type Flip-Flops	BD, ACC	2
	SVIGTC40H393	4-Bit Binary Counter	TG, BD	2
	SVIGTC4013BP	Dual D-Type Flip-Flops	ACC	1
	SVIGTC4050BP	Hex Buffers	BD	2
	SVIGHD14051B	8-Channel Multiplexer	OP	1
○	SVIGHD14046B	Phase-Locked Loop	SPS	1
	SVIGM53217	Hex Buffers (Open Collector)		5
	SVIGM53207	Hex Buffers (Open Collector)	SM	3
○	SVIGM53216	Hex Inverters	SAS, ACC	2
○	SVIGM5218L	Operational Amplifier		49
○	SVIGNJM082D	Operational Amplifier		3
	SVIGUPC624C	8-Bit D-A Converter	SPS	1
	SVIGBA6110	VCA (Voltage Controlled Amplifier)		5
○	SVIGBA6704	VCF (Voltage Controlled Filter)	OP	1
	SVIGUPD4066C	Quadruple Bilateral Switch		11
○	SVIGTA61	Transistor Array	CPSL	1
	AN6913	Dual Comparator	BD	1
	AN6552F	Operational Amplifier	SPS	1
	MN3006	BBD for Signal Delays (128-Stage)	CSM	3
○	MN15621GSA	Micro-Computer		4
	AN7060	Power Amp Driver	AS	1
○	AN7815	Voltage Regulator	AS	1
○	SVIGSI3052P	Voltage Regulator	AS	1
	SVIGUPC7915H	Voltage Regulator	AS	1
	SVIGSTK0029N	Power IC	AS	1

TRANSISTORS

	Part No.	Description	Per/Set
	2SA830B		3
	2SA1015-GR		9
	2SA1123R		1
	2SC1047C		9
	2SC1318S		2
	2SC2320LFG		22
	2SJ40CE	FET	4

DIODES

	Part No.	Description	Per/Set
S	MA162A	MA150IR	16
○	MA165TA5VT		155
	MA1062	Zener	1
	SVDGSM1A02LF	Rectifier	3
○	SVDS2V20 ⚠	Rectifier	4

COIL, QUARTZ & CERAMIC OSCILLATORS

	Part No.	Description	Per/ Set
○	SVQG43U1200A	12MHz Quartz Oscillator	1
○	EFOA4R5M01A	4.5MHz Ceramic Oscillator	4
○	SVQGCSA600MT	6MHz Ceramic Oscillator	1
○	SVQGCSA110MT	11MHz Ceramic Oscillator	1
○	ELQS180KB	Coil, 18μH, Master Clock OSC	2
○	SLCSC331KU	Coil, 0.33mH, Network	1

LED'S, LAMP

	Part No.	Description	Per/ Set
	LN29RP	LED (Power Indicator)	1
○	SEL2210SLFM1	LED (red)	75
○	SEL2710KLFM1	LED (yellow)	7
	XAMR55P	Lamp (Expression)	1

CdS

	Part No.	Description	Per/ Set
	SVEG5	Light Sensitive Device	1

SWITCHES

	Part No.	Description	Per/ Set
	ESB90712V	Power Switch	1
	ESE3758	Voltage Selector (XL, XR, XS, X, XX, XV) only	1
○	SSHG1029A	Switch, for Tang Type	24
○	SSHG1030A	Switch, for Push Type	70

VARIABLE RESISTOR

	Part No.	Description	Per/ Set
○	EVD3520B24G	20KΩB, Tempo Control	1

SEMI-FIXED RESISTORS

	Part No.	Description	Per/ Set
○	EVN60AA00B24	20KΩ	3
○	EVN60AA00B53	5KΩ	1

COMPONENTS COMBINATIONS

	Part No.	Description	Per/ Set
○	SREG8A0462M	Custom Block Resistor	1
○	EXBP84222MM	2.2KΩ×4, Block Resistor	2
○	EXBP84103MM	10KΩ×4, Block Resistor	1
○	EXBP86103MM	10KΩ×6, Block Resistor	1
○	EXBP88103MM	10KΩ×8, Block Resistor	1
○	EXBP88222MM	2.2KΩ×8, Block Resistor	1
○	EXBP88472MM	4.7KΩ×8, Block Resistor	2
○	EXBP88223MM	22KΩ×8, Block Resistor	1
○	EXBP88334MM	330KΩ×8, Block Resistor	1
○	EXATA223S	Noise Suppression Filter	5

JACKS

	Part No.	Description	Per/ Set
	SJJG30A	Line Out Terminal	1
○	SJJG200A	Headphone Jack	1

SPEAKERS

	Part No.	Description	Per/ Set
○	EAS30PL110S	30cm, 6Ω	1
○	EAS65PH71S	6.5cm, 6Ω	1

RELAY

	Part No.	Description	Per/ Set
○	SSYGMR3112D		1

FUSES

	Part No.	Description	Per/ Set
	XBA2C12TR0 ⚠	1.25A, 250V (EK and Europe) only	1
	XBA2C16TR0 ⚠	1.6A, 250V } (XL, XR, XS, X, XX, XV) only	1
	XBA2C12TR0 ⚠	1.25A, 250V }	2
	XBA1F16NU14 ⚠	1.6A, 125V (MC, XT) only	1

TRANSFORMERS, LINE FILTER

	Part No.	Description	Per/ Set
○	SLTG5N25 ⚠	Power Transformer	1
○	SLTG5N26 ⚠	Power Transformer (MC, XT) only	1
	SLTA6X1-D ⚠	Line Filter	1

AC CORD, AC OUTLET, PLUG

	Part No.	Description	Per/ Set
	SJAG24 ⚠	AC Cord	1
	SJAG23 ⚠	AC Cord (XL, XR) only	1
	SJAG22 ⚠	AC Cord (MC, XT) only	1
	SJAG25 ⚠	AC Cord (EK, XS) only	1
	SJP5213-1 ⚠	Attachment Plug (X, XX, XV) only	1

ASSEMBLY PARTS

	Part No.	Description	Per/ Set
	SXVG5020A	Expression Unit	1

■ WIRING PARTS (See wiring diagram on page II-3, II-4)

	Part No.	Description	Per/ Set
○	SWKG155	Connector, With Wire	1
○	SWKG0312LSA	Connector, With Wire	1
○	SWKG0411LSA	Connector, With Wire	1
○	SWKG0817LSA	Connector, With Wire	1
○	SWKG0818ZA	Connector, With Wire, E22	1
○	SWKG0819ZA	Connector, With Wire, E22L	1
○	SWKG106LSA	Connector, With Wire	1
○	SWKG0417ZA	Connector, With Wire	1
○	SWKG0616ZA	Connector, With Wire	1
	SWKG275	Connector, With Wire, E22 (XL, XR, XS, X, XX, XV) only	1

■ Numbering System of Resistor

Resistor Type	Wattage	Tolerance
ERD : Carbon	S2 : 1/4W	G : ±2%
ERD—F : Carbon	2 : 1/4W	J : ±5%
Flame-Proof	25 : 1/4W	K : ±10%
	50 : 1/2W	
ERG : Metal Oxide	1 : 1W	
ERQ : Fuse Type Metal	2 : 2W	

Example

ERD	S2	T	J	101
Type	Wattage	Shape	Tolerance	Value

ERD	2	F	C	G	101
Type	Wattage	Flame Proof	Fuse Type	Tolerance	Value

ERG	1	AN	J	121
Type	Wattage	Shape	Tolerance	Value

ERQ	1	C	K	P	R33
Type	Wattage	Flame Proof	Tolerance	Shape	Value

■ Numbering System of Capacitor

Capacitor Type	Symbol Mark	Voltage		Tolerance
		ECEA Type	Others	
ECEA : Electrolytic		0J : 6.3V	1H : 50V DC	ECEA Type : ±20%
ECEA—N : Non-Polar Electrolytic	Ⓝ	1A : 10V	1E : 25V DC	J : ±5%
ECEA—Y : Non-Polar Electrolytic	Ⓨ	1C : 16V		K : ±10%
ECEA—M : Electrolytic, MSR Series	(MS)	1E : 25V		M : ±20%
ECEA—Z : Electrolytic, Z Series	Ⓩ	1V : 35V		
ECQV : TF Capacitor	(TF)	1H : 50V		
ECC : Ceramic	○	50Y : 50V		
ECK : Ceramic	○	50M : 50V		
ECQM : Polyester		16M : 16V		
		50Z : 50V		

Example

ECEA	0J	U	330
Type	Voltage	Peculiarity use	Value

ECEA	50	M (Z)	R47	R
Type	Voltage	Peculiarity use	Value	Special use

ECQV (M)	1H	102	J
Type	Voltage	Value	Tolerance

ECC (K)	R	1H	220	J
Type	Shape	Valtage	Value	Tolerance

Part No.	Description	Per/ Set
RESISTORS		
ERDS2TJ100	10Ω	
ERDS2TJ120	12Ω	
ERDS2TJ150	15Ω	
ERDS2TJ180	18Ω	
ERDS2TJ220	22Ω	
ERDS2TJ270	27Ω	
ERDS2TJ330	33Ω	1
ERDS2TJ390	39Ω	
ERDS2TJ470	47Ω	24
ERDS2TJ560	56Ω	
ERDS2TJ680	68Ω	
ERDS2TJ820	82Ω	
ERDS2TJ101	100Ω	5
ERDS2TJ121	120Ω	
ERDS2TJ151	150Ω	
ERDS2TJ181	180Ω	
ERDS2TJ221	220Ω	
ERDS2TJ271	270Ω	
ERDS2TJ331	330Ω	6
ERDS2TJ391	390Ω	
ERDS2TJ471	470Ω	6
ERDS2TJ561	560Ω	7
ERDS2TJ681	680Ω	3
ERDS2TJ821	820Ω	2

Part No.	Description	Per/ Set
ERDS2TJ102	1KΩ	26
ERDS2TJ122	1.2KΩ	35
ERDS2TJ152	1.5KΩ	2
ERDS2TJ182	1.8KΩ	
ERDS2TJ222	2.2KΩ	17
ERDS2TJ272	2.7KΩ	2
ERDS2TJ332	3.3KΩ	26
ERDS2TJ392	3.9KΩ	
ERDS2TJ472	4.7KΩ	81
ERDS2TJ562	5.6KΩ	2
ERDS2TJ682	6.8KΩ	15
ERDS2TJ822	8.2KΩ	4
ERDS2TJ103	10KΩ	68
ERDS2TJ123	12KΩ	7
ERDS2TJ153	15KΩ	24
ERDS2TJ183	18KΩ	8
ERDS2TJ223	22KΩ	18
ERDS2TJ273	27KΩ	3
ERDS2TJ333	33KΩ	36
ERDS2TJ393	39KΩ	2
ERDS2TJ473	47KΩ	44
ERDS2TJ563	56KΩ	24
ERDS2TJ683	68KΩ	36
ERDS2TJ823	82KΩ	28
ERDS2TJ104	100KΩ	65

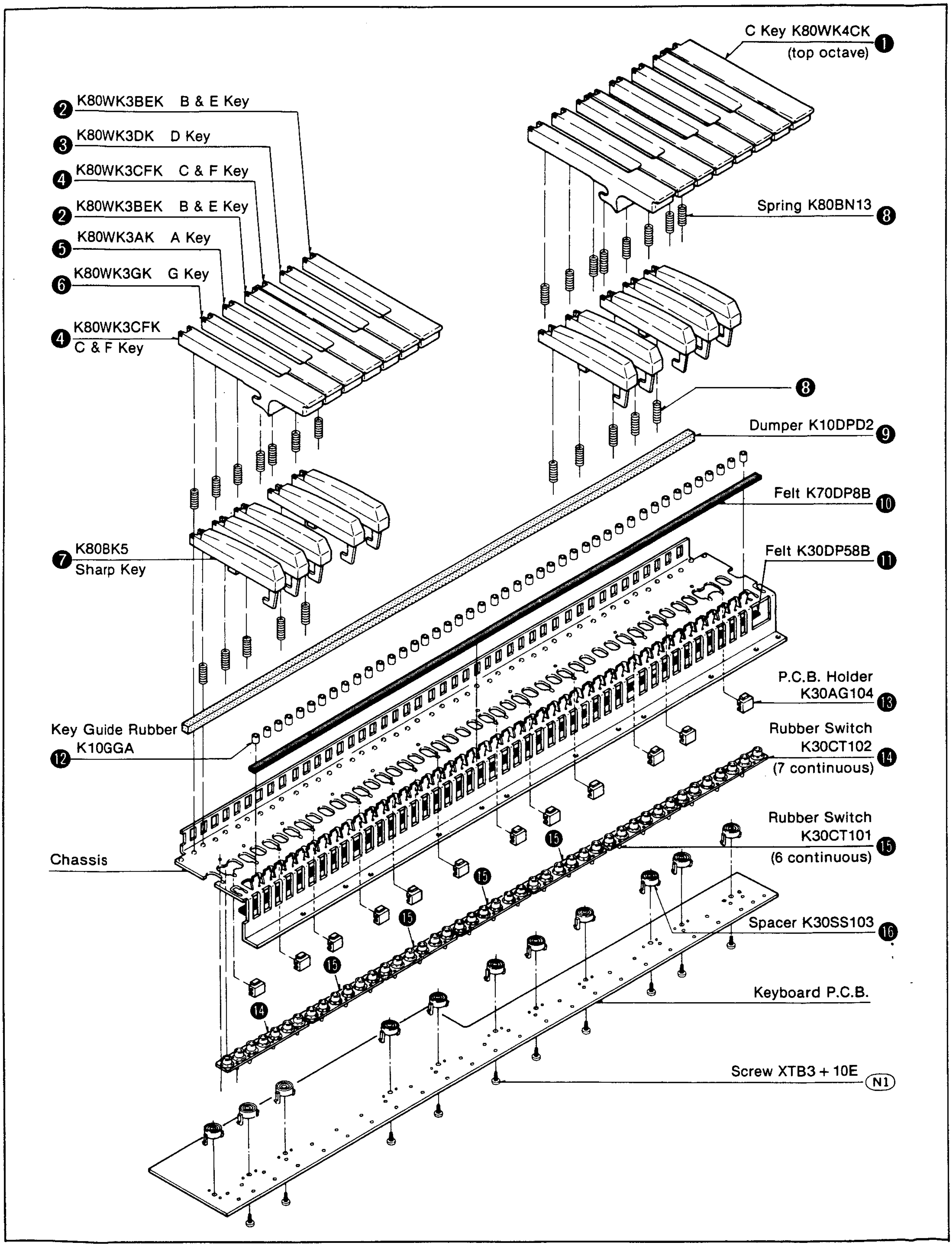
	Part No.	Description	Per/Set
	ERDS2TJ124	120KΩ	8
	ERDS2TJ154	150KΩ	35
	ERDS2TJ184	180KΩ	5
	ERDS2TJ224	220KΩ	18
	ERDS2TJ274	270KΩ	4
	ERDS2TJ334	330KΩ	1
	ERDS2TJ394	390KΩ	
	ERDS2TJ474	470KΩ	8
	ERDS2TJ564	560KΩ	1
	ERDS2TJ684	680KΩ	3
	ERDS2TJ824	820KΩ	
	ERDS2TJ105	1MΩ	9
	ERDS2TJ125	1.2MΩ	
	ERDS2TJ155	1.5MΩ	1
	ERDS2TJ185	1.8MΩ	
	ERDS2TJ225	2.2MΩ	
	ERDS2TJ275	2.7MΩ	
	ERDS2TJ335	3.3MΩ	
	ERDS2TJ395	3.9MΩ	
	ERDS2TJ475	4.7MΩ	
	ERDS2TJ565	5.6MΩ	
	ERDS2TJ685	6.8MΩ	
	ERDS2TJ825	8.2MΩ	
⚠	ERD25FVJ4R7	🄵 1/4W 4.7Ω	1
⚠	ERD25FVJ470	🄵 1/4W 47Ω	1
⚠	ERD25FVJ151	🄵 1/4W 150Ω	1
⚠	ERD2FCJ6R8	🄵 1/4W 6.8Ω, Fuse Type	2
⚠	ERD2FCG220	🄵 1/4W 22Ω, Fuse Type	9
⚠	ERD2FCG101	🄵 1/4W 100Ω, Fuse Type	1
⚠	ERD2FCG100	🄵 1/4W 10Ω, Fuse Type	10
⚠	ERD2FCJ4R7	🄵 1/4W 4.7Ω, Fuse Type	8
⚠	ERD50FJ681	🄵 1/2W 680Ω	2
⚠	ERQ1CKPR33	🄵 1W 0.33Ω, Fuse Type	1

CAPACITORS

	Part No.	Description	Per/Set
	ECEA0JU330	6.3V 33μF	1
	ECEA0JU470	6.3V 47μF	1
	ECEA0JU101	6.3V 100μF	4
	ECEA0JU221	6.3V 220μF	7
	ECEA1CU100	16V 10μF	3
	ECEA1CU220	16V 22μF	
	ECEA1CU330	16V 33μF	
	ECEA1CU470	16V 47μF	8
	ECEA1CU101	16V 100μF	13
	ECEA1CU221	16V 220μF	2
	ECEA1CU331	16V 330μF	1
	ECEA1CU471	16V 470μF	
	ECEA1CU102	16V 1000μF	
	ECEA1CU222	16V 2200μF	2
	ECEA1CU332	16V 3300μF	
	ECEA1CU472	16V 4700μF	
	ECEA1EU4R7	25V 4.7μF	
	ECEA1EU100	25V 10μF	2
	ECEA1EU220	25V 22μF	
	ECEA1EU330	25V 33μF	3
	ECEA1EU470	25V 47μF	5
	ECEA1EU101	25V 100μF	2
	ECEA1EU221	25V 220μF	

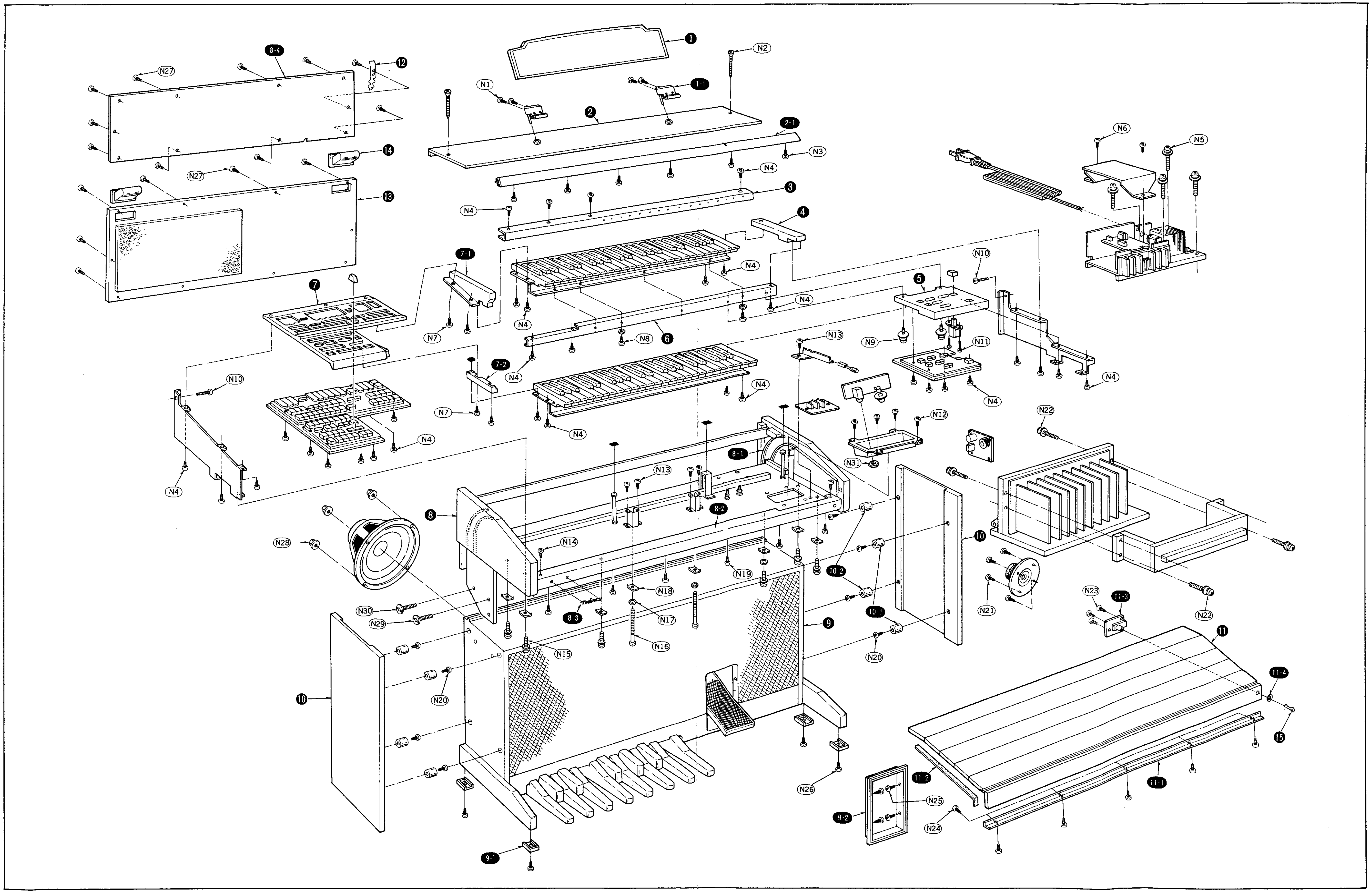
	Part No.	Description	Per/Set
	ECEA1VU4R7	35V 4.7μF	
	ECEA1VU100	35V 10μF	1
	ECEA1VU220	35V 22μF	
	ECEA1VU222	35V 2200μF	2
	ECEA1HK0R1	50V 0.1μF	4
	ECEA1HUR47	50V 0.47μF	5
	ECEA1HU010	50V 1μF	13
	ECEA1HU2R2	50V 2.2μF	6
	ECEA1HU3R3	50V 3.3μF	
	ECEA1HU4R7	50V 4.7μF	1
	ECEA1CN100S	Ⓝ 16V 10μF	1
	ECEA1HN010S	Ⓝ 50V 1μF	7
	ECEA50Y6R8	Ⓨ 50V 6.8μF, Network	1
	ECEA50ZR1	Ⓩ 50V 0.1μF	1
	ECEA50ZR15	Ⓩ 50V 0.15μF	3
	ECEA50ZR22	Ⓩ 50V 0.22μF	
	ECEA50ZR33	Ⓩ 50V 0.33μF	3
	ECEA50ZR47	Ⓩ 50V 0.47μF	1
	ECEA50ZR68	Ⓩ 50V 0.68μF	2
	ECEA16M10R	(MS) 16V 10μF	6
	ECEA50MR1R	(MS) 50V 0.1μF	
	ECEA50MR15R	(MS) 50V 0.15μF	
	ECEA50MR22R	(MS) 50V 0.22μF	1
	ECEA50MR33R	(MS) 50V 0.33μF	
	ECEA50M1R	(MS) 50V 1μF	1
	ECQM1H102KV	0.001μF	26
	ECQM1H152KV	0.0015μF	12
	ECQM1H222KV	0.0022μF	13
	ECQM1H332KV	0.0033μF	7
	ECQM1H472KV	0.0047μF	18
	ECQM1H682KV	0.0068μF	13
	ECQM1H103KV	0.01μF	19
	ECQM1H123KV	0.012μF	1
	ECQM1H153KV	0.015μF	10
	ECQM1H223KV	0.022μF	11
	ECQM1H333KV	0.033μF	12
	ECQM1H473KV	0.047μF	12
	ECQM1H683KV	0.068μF	11
	ECQM1H104KV	0.1μF	11
	ECQV1H104JZ	(TF) 0.1μF	4
	ECQV1H154JZ	(TF) 0.15μF	1
	ECQV1H224JZ	(TF) 0.22μF	4
	ECQV1H334JZ	(TF) 0.33μF	5
	ECQV1H474JZ	(TF) 0.47μF	3
	ECCR1H220J5	○ 22PF	6
	ECCR1H330J5	○ 33PF	8
	ECCR1H470J5	○ 47PF	5
	ECCR1H680J5	○ 68PF	3
	ECCR1H101J5	○ 100PF	21
	ECCR1H151J5	○ 150PF	4
	ECCR1H221J5	○ 220PF	8
	ECCR1H331J5	○ 330PF	9
	ECCR1H471J5	○ 470PF	22
	ECCR1H681J5	○ 680PF	11
	ECKR1E473ZV	○ 0.047μF	52
⚠	ECKCVA1472MF	○ 4700PF, Line Capacitor	1
⚠	ECQU1A103MH	0.01μF, 125V, Across-the-Line Capacitor (MC)	1
⚠	ECQU2A103MF	0.01μF, 250V, Across-the-Line Capacitor	1
	EECW2R3A3R3	3.3F, 2.3V, Liquid Electrolyte Double Layer	3

EXPLODED VIEWS OF MANUAL KEYBOARD



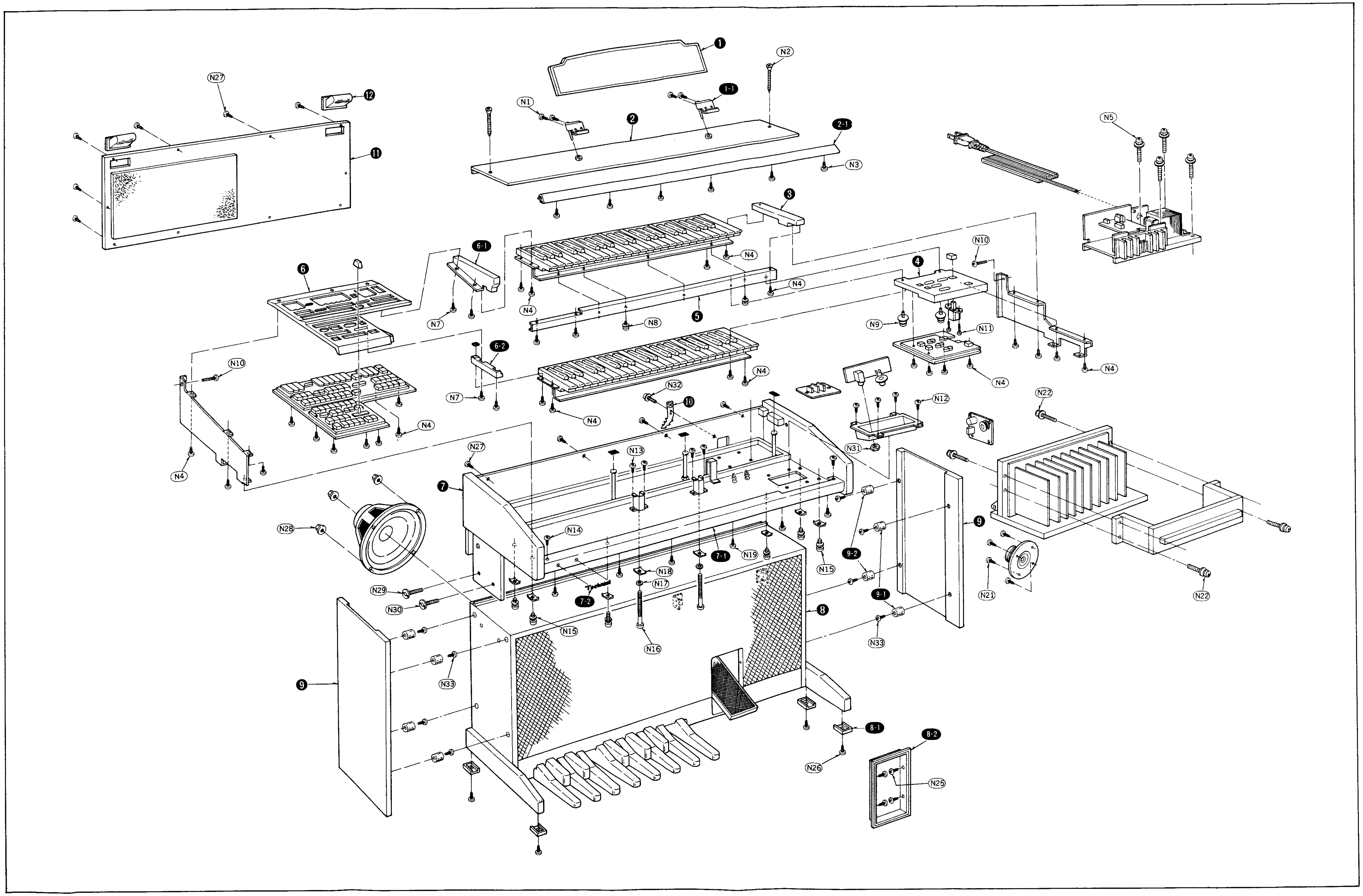
C Key K80WK4CK (top octave) ❶
❷ K80WK3BEK B & E Key
❸ K80WK3DK D Key
❹ K80WK3CFK C & F Key
❷ K80WK3BEK B & E Key
❺ K80WK3AK A Key
❻ K80WK3GK G Key
❹ K80WK3CFK C & F Key
Spring K80BN13 ❽
❽
Dumper K10DPD2 ❾
Felt K70DP8B ❿
❼ K80BK5 Sharp Key
Felt K30DP58B ⓫
P.C.B. Holder K30AG104 ⓭
Key Guide Rubber ⓬ K10GGA
Rubber Switch K30CT102 (7 continuous) ⓮
Rubber Switch K30CT101 (6 continuous) ⓯
Chassis
⓯
⓯
⓯
⓯
Spacer K30SS103 ⓰
⓮
Keyboard P.C.B.
Screw XTB3 + 10E (N1)

EXPLODED VIEWS OF CABINET (SX-E22)

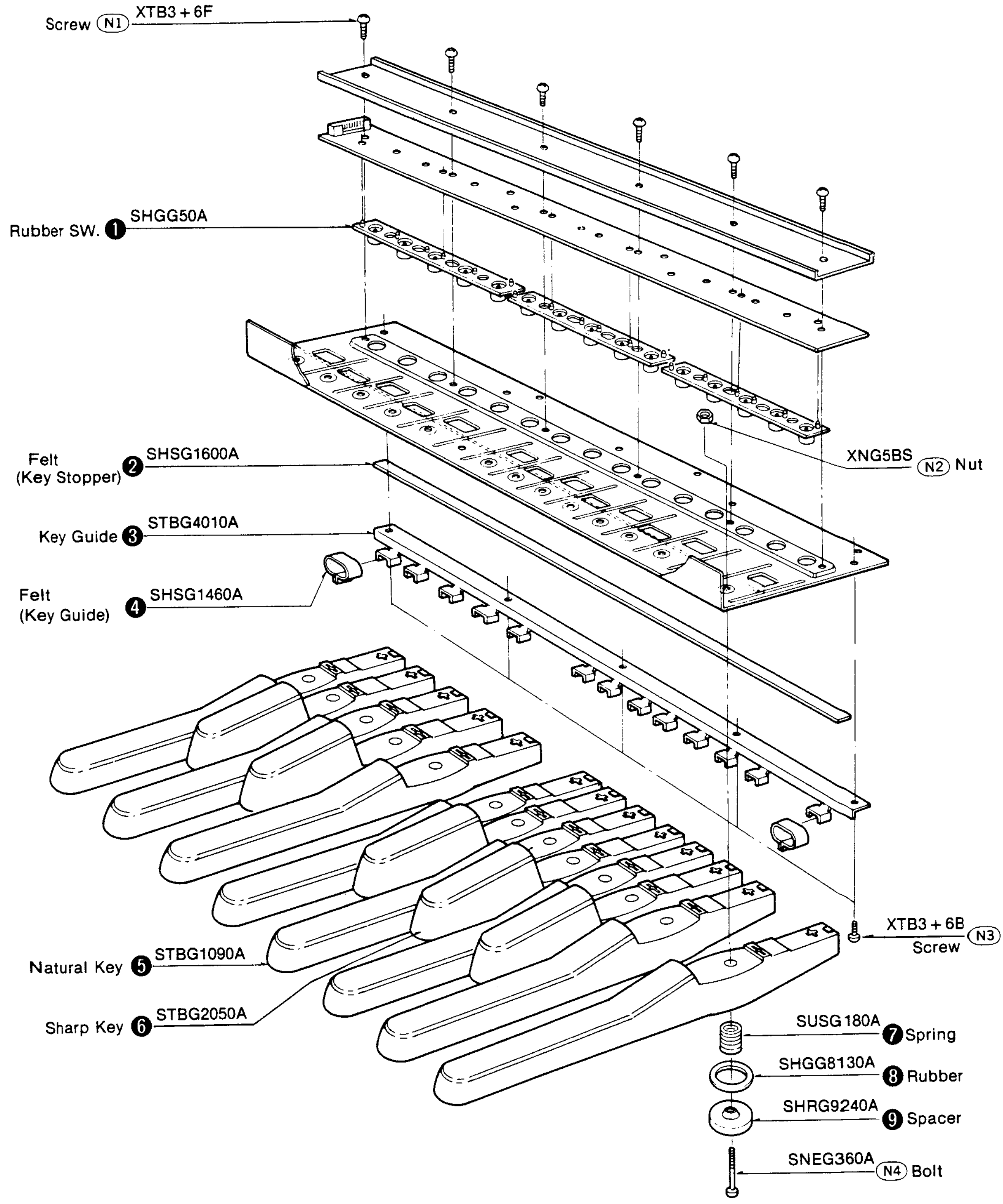


1
N2
8-4
N27
12
1-1
N1
2
2-1
N3
N4
3
14
N27
13
N6
N5
4
N4
7-1
N10
7
5
N4
N4
N7
N8
6
N13
N9
N11
7-2
N4
N10
N4
N4
N7
N4
N12
N4
N22
8-1
N31
N4
N13
8
8-2
N14
N28
10
N19
10-2
N18
N21
N23
11-3
N22
N30
8-3
10-1
N29
N17
9
11
N15
N16
N20
10
N20
11-4
15
11-2
11-1
N26
N25
9-2
N24
9-1

EXPLODED VIEWS OF CABINET (SX-E22L)


❶
N2
N27
⓬
1-1
N1
❷
2-1
N3
⓫
N5
❸
N10
6-1
N4
❹
❻
N4
N7
N8
❺
N9
N11
6-2
N10
N4
N4
N7
N32
❿
N4
N22
N12
N4
N31
N27
N13
❼
❾
N14
N28
7-1
N19
9-2
N15
N29
N18
N17
7-2
N30
N15
N16
9-1
N21
N22
❽
N33
N33
❾
8-1
8-2
N26
N25
Technics

EXPLODED VIEWS OF PEDAL KEYBOARD


Screw (N1) XTB3 + 6F
Rubber SW. ❶ SHGG50A
Felt (Key Stopper) ❷ SHSG1600A
Key Guide ❸ STBG4010A
Felt (Key Guide) ❹ SHSG1460A
Natural Key ❺ STBG1090A
Sharp Key ❻ STBG2050A
XNG5BS (N2) Nut
XTB3 + 6B (N3) Screw
SUSG180A ❼ Spring
SHGG8130A ❽ Rubber
SHRG9240A ❾ Spacer
SNEG360A (N4) Bolt

REPLACEMENT PARTS LIST...Mechanism

■ MECHANICAL PARTS

	Ref. No.	Part No.	Description	Per/ Set
SX-E22			CABINET	
○	1	SKGG2K20B	Music Rack Assembly	1
	1-1	SBLG110A	Stay	2
○	2	SKPG420A	Top Cover	1
○	2-1	SGXG592A	Music Guide	1
○	3	SGXG1050B	Ornament Panel for Upper Keyboard	1
○	4	SGWG5100A	Upper Right End Cover Panel	1
○	5	SGWG3130A	Lower Right End Cover Panel	1
○	6	SGXG1040BS	Ornament Panel for Lower Keyboard	1
○	7	SYWG8040A	Left End Cover Panel	1
○	7-1	SGEG180A	Ornament	1
○	7-2	SGEG160A	Ornament	1
○	8	SKMG650AS	Cabinet (Upper Unit)	1
	8-1	SKEG7018	Sliding Cover Guide	2
○	8-2	SGXG1080A	Front Panel	1
	8-3	SGBS14	Technics Badge	1
○	8-4	SKZG7260A	Rear Panel (Upper)	1
○	9	SKMG660AS	Cabinet (Lower Unit)	1
	9-1	SHRG2040A	Foot	4
○	9-2	SGXG1100A	Expression Ornament	1
○	10	SKZGA080A	Side Panel	2
○	10-1	SHGG9040B	Catch Rubber (black)	4
○	10-2	SHGG9040A	Catch Rubber (brown)	4
○	11	SKZG8150A	Sliding Cover Assembly	1
○	11-1	SGXG412A	Aluminium Ornament	1
	11-2	SHSG1560A	Felt	2
○	11-3	SBEG30A	Lock	1
○	11-4	SBEG40A	Staple	1
	12	SHRG104	Cord Band	1
○	13	SYUG2040A	Rear Panel (lower)	1
	14	SKHG5	Handle	2
			ACCESSORIES	
○	15	SBEG60A	Key	1
		SBEG20A	Hexagonal Rod Wrench	1
			BENCH	
○		SZ-CM16A		1

MC Products for Canada only

	Ref. No.	Part No.	Description	Per/ Set
SX-E22			CABINET	
	1	SKGG2L10A	Music Rack Assembly	1
	1-1	SBLG110A	Stay	2
○	2	SKPG420B	Top Cover	1
○	2-1	SGXG592B	Music Guide	1
○	3	SGXG1050D	Ornament Panel for Upper Keyboard	1
○	4	SGWG5100B	Upper Right End Cover Panel	1
○	5	SGWG3130B	Lower Right End Cover Panel	1
○	6	SGXG1040BS	Ornament Panel for Lower Keyboard	1
○	7	SYWG8040B	Left End Cover Panel	1
○	7-1	SGEG180B	Ornament	1
○	7-2	SGEG160B	Ornament	1
○	8	SKMG650BS	Cabinet (Upper Unit)	1
	8-1	SKEG7018	Sliding Cover Guide	2
○	8-2	SGXG1080B	Front Panel	1
	8-3	SGBS14	Technics Badge	1
○	8-4	SKZG7260A	Rear Panel (upper)	1
○	9	SKMG670BS	Cabinet (Lower Unit)	1
	9-1	SHRG2040A	Foot	4
○	9-2	SGXG1100A	Expression Ornament	1
○	10	SKZGA080B	Side Panel	2
○	10-1	SHGG9040B	Catch Rubber (black)	4
○	10-2	SHGG9040A	Catch Rubber (brown)	4
○	11	SKZG8150B	Sliding Cover Assembly	1
○	11-1	SGXG412A	Aluminium Ornament	1
	11-2	SHSG1560A	Felt	2
○	11-3	SBEG30A	Lock	1
○	11-4	SBEG40A	Staple	1
	12	SHRG104	Cord Band	1
○	13	SYUG2040A	Rear Panel (lower)	1
	14	SKHG5	Handle	2
			ACCESSORIES	
○	15	SBEG60A	Key	1
		SBEG20A	Hexagonal Rod Wrench	1
			BENCH	
○		SZ-CM16B		1

SX-E22L

CABINET

Ref. No.		Part No.	Description	Per/Set
○	1	SKGG2K20B	Music Rack Assembly	1
	1-1	SBLG110A	Stay	2
○	2	SKPG410A	Top Cover	1
○	2-1	SGXG533A	Music Guide	1
○	3	SGWG5100A	Upper Right End Cover Panel	1
○	4	SGWG3130A	Lower Right End Cover Panel	1
○	5	SGXG1040BS	Ornament Panel for Lower Keyboard	1
○	6	SYWG8040A	Left End Cover Panel	1
○	6-1	SGEG180A	Ornament	1
○	6-2	SGEG160A	Ornament	1
○	7	SKMG590AS	Cabinet (Upper Unit)	1
○	7-1	SGXG1090A	Front Panel	1
	7-2	SGBS14	Technics Badge	1
○	8	SKMG610AS	Cabinet (Lower Unit)	1
	8-1	SHRG2040A	Foot	4
○	8-2	SGXG1100A	Expression Ornament	1
○	9	SKZGA060A	Side Panel	2
○	9-1	SHGG9040B	Catch Rubber (black)	4
○	9-2	SHGG9040A	Catch Rubber (brown)	4
	10	SHRG104	Cord Band	1
○	11	SYUG2050A	Rear Panel	1
	12	SKHG5	Handle	2

ACCESSORY

Ref. No.		Part No.	Description	Per/Set
		SBEG20A	Hexagonal Rod Wrench	1

BENCH

Ref. No.		Part No.	Description	Per/Set
○		SZ-CM16A		1

SCREWS and WASHERS

Ref. No.		Part No.	Description	Per/Set
	N1	XTW3+10AFVC	Screw	
	N2	XTC4+20AFVC	Screw	
	N3	XMM31+10	Screw	
	N4	XTB4+12A	Screw	
	N5	XYN4+F25S	Screw, with Washers	
	N6	XTW3+6L	Screw	
	N7	XTB4+12G	Screw	
	N8	XYN5+C10S	Screw, with Spring Washer	
	N9	XYN4+F10S	Screw, with Washers	
	N10	XTB35+20A	Screw	
	N11	SNEG740A	Screw	
	N12	XTB35+10A	Screw	
	N13	XTB35+8A	Screw	
	N14	XTB3+10AFVC	Screw	
	N15	XYN5+C25S	Screw, with Spring Washer	
	N16	XSN5+85S	Screw	
	N17	XWA5B	Spring Washer	
	N18	SNEG150A	Washer	
	N19	XTT35+10AFVC	Screw	
	N20	XTB3+14A	Screw	
	N21	XTT4+12A	Screw	
	N22	SNEG790AS	Screw, with Washers	
	N23	XTB3+10A	Screw	
	N24	XTS3+10AFVC	Screw	
	N25	XTB3+14AFVC	Screw	
	N26	XMM35+32	Screw	
	N27	XTT4+16AFVC	Screw	
	N28	SNE499-1	Nut	
	N29	SNEG410A	Screw (black)	
	N30	SNEG410B	Screw (red)	
	N31	XNS12FZ	Nut	
	N32	XYN3+C12S	Screw, with Washers	
	N33	XTB3+12AFZ	Screw	

MANUAL KEYBOARD

Ref. No.		Part No.	Description	Per/Set
○	1	K80WK4CK	Natural Key (Top Octave C Key)	1
○	2	K80WK3BEK	Natural Key (B and E Key)	7
○	3	K80WK3DK	Natural Key (D Key)	3
○	4	K80WK3CFK	Natural Key (C and F Key)	7
○	5	K80WK3AK	Natural Key (A Key)	4
○	6	K80WK3GK	Natural Key (G Key)	4
○	7	K80BK5	Sharp Key	18
○	8	K80BN13	Spring	44
	9	K10DPD2	Dumper	1
	10	K70DP8B	Felt	1
	11	K30DP58B	Felt	1
	12	K10GGA	Key Guide Rubber	44
	13	K30AG104	P.C.B. Holder	12
	14	K30CT102	Rubber Switch (7 continuous)	2
	15	K30CT101	Rubber Switch (6 continuous)	5
	16	K30SS103	Spacer	11
	N1	XTB3+10E	Screw	11

PEDAL KEYBOARD

Ref. No.		Part No.	Description	Per/Set
	1	SHGG50A	Rubber Switch (5 continuous)	3
	2	SHSG1600A	Felt (Key Stopper)	1
	3	STBG4010A	Key Guide	1
	4	SHSG1460A	Felt (Key Guide)	13
	5	STBG1090A	Natural Key	8
	6	STBG2050A	Sharp Key	5
	7	SUSG180A	Spring	13
	8	SHGG8130A	Rubber	13
	9	SHRG9240A	Spacer	13
	N1	XTB3+6F	Screw	6
	N2	XNG5BS	Nut	13
	N3	XTB3+6B	Screw	5
	N4	SNEG360A	Bolt	13

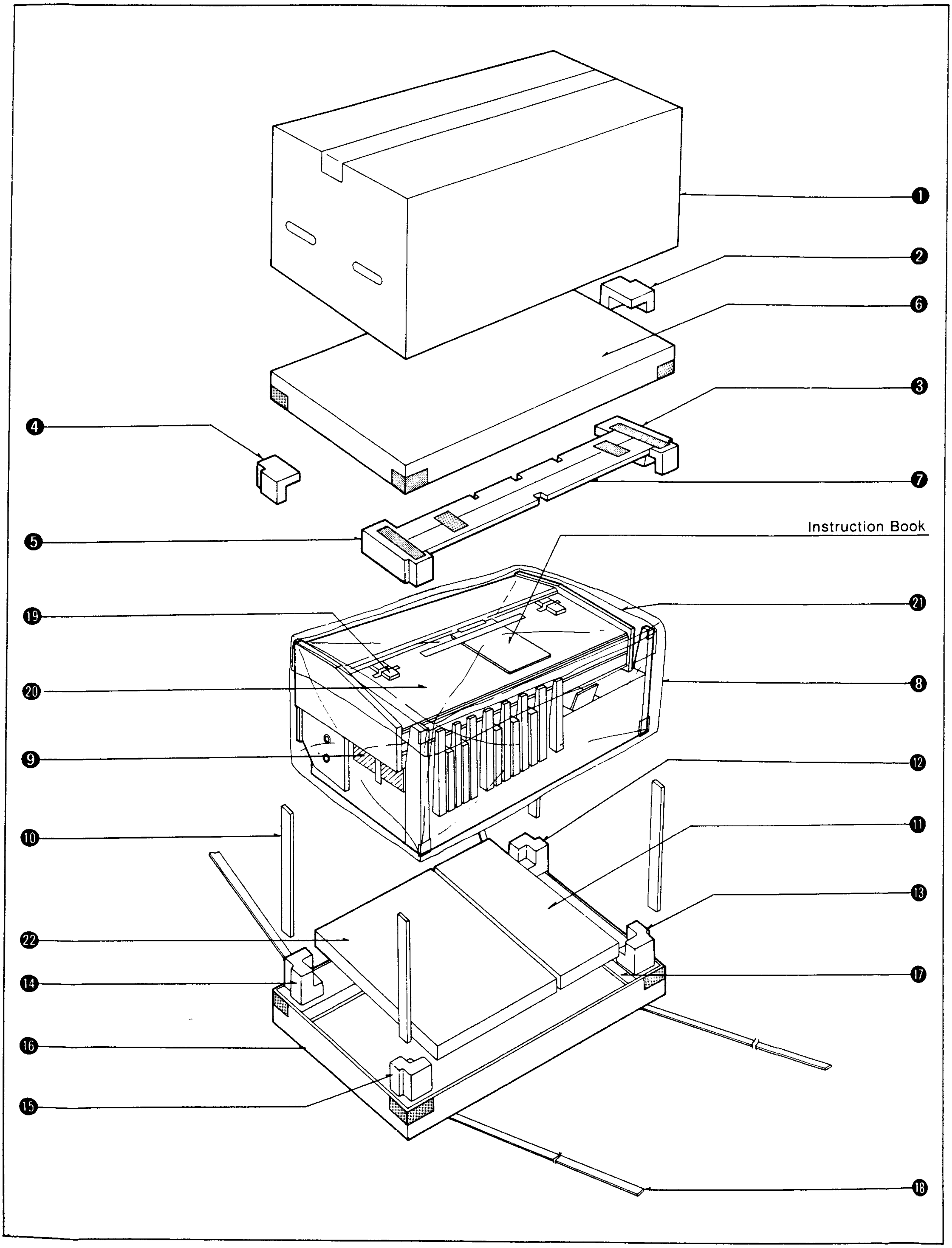
SWITCH MOLD ASSEMBLY

Ref. No.		Part No.	Description	Per/Set
○		SSHG9035AA	lower, upper, tremolo/celeste, bass, upper solo synthe presets, VSC, U & L poly presets, orchestral conductor	1
○		SSHG9034AA	rhythm selector, rhythmic orchestra, Program Chord Computer and others	1
○		SSHG9040AA	sustain, main volume, FSC	1

	Part No.	Description		Per/ Set
		KNOB		
	SBNG6010G	Tempo Control		1
		BUTTONS		
	SBCG20I47	Power Switch		1
○	SBCG130A02	flute 8′	lower tab voices	1
○	SBCG130A04	flute 4′		1
○	SBCG130B01	string 8′		1
○	SBCG170G00	full		1
○	SBCG130A01	flute 16′	upper tab voices	1
○	SBCG130A02	flute 8′		1
○	SBCG130A04	flute 4′		1
○	SBCG130A06	flute 2′		1
○	SBCG130B01	string 8′		1
○	SBCG130A09	percussive tone 4′		1
○	SBCG140K05	harmonic coupler $2^{2}/_{3}$′		1
○	SBCG130A12	U tab voices	tremolo/celeste	1
○	SBCG130E02	U & L poly presets		1
○	SBCG130A13	L tab voices		1
○	SBCG140B12	celeste		1
○	SBCG140D03	chorus/tremolo		1
○	SBCG140A03	bass 16′	bass	1
○	SBCG140A04	bass 8′		1
○	SBCG140B10	electric bass		1
○	SBCG170G00	volume		2
○	SBCG140F01	trombone	upper solo synthesizer presets	
○	SBCG140F02	saxophone		1
○	SBCG140F06	panflute		1
○	SBCG140F07	synthe chopper		1
○	SBCG170G00	volume		2
○	SBCG140L01	I	voice setting computer	1
○	SBCG140L02	II		1
○	SBCG140L03	III		1
○	SBCG140D01	cancel		1
○	SBCG140B03	piano	U & L poly presets	1
○	SBCG140B04	harpsichord		1
○	SBCG140B05	vibraphone		1
○	SBCG140B08	guitar		1
○	SBCG140E01	trombone		1
○	SBCG140E02	saxophone		1
○	SBCG140E03	accordion		1
○	SBCG140E04	clarinet		1
○	SBCG140E05	wah brass		1
○	SBCG170G00	full		1
○	SBCG140G09	U tab voices	orchestral conductor	1
○	SBCG140G11	U poly presets		1
○	SBCG140G10	U solo synthe presets		1
○	SBCG140H09	L tab voices		1
○	SBCG140H10	L poly presets		1

	Part No.	Description		Per/ Set
○	SBCG140A05	march	rhythm selector	1
○	SBCG140C02	swing		1
○	SBCG140A06	8 beat		1
○	SBCG140C04	disco I		1
○	SBCG140A09	bossanova		1
○	SBCG140C06	samba		1
○	SBCG140A12	tango		1
○	SBCG140C07	waltz		1
○	SBCG170G00	full	rhythmic orchestra	1
○	SBCG140B15	I/II		1
○	SBCG140E11	on		1
○	SBCG170G00	drum percussion volume		2
○	SBCG140K00	fill in & intro		1
○	SBCG140K04	cancel	Program Chord Computer	1
○	SBCG140J02	PCC		1
○	SBCG140J03	fingered		1
○	SBCG140A13	memory		1
○	SBCG140F10	record		1
○	SBCG140E10	transpose		1
○	SBCG140A14	glide/rhythm		1
○	SBCG140L08	close/open	techni chord	1
○	SBCG140D02	on		1
○	SBCG140A15	synchro		1
○	SBCG140F11	start/stop		1
○	SBCG160C00	sustain on	sustain	2
○	SBCG170G00	sustain volume		6
○	SBCG170G00	main volume		2
○	SBCG140L00	Fullband Setting Computer		1
○	SHRG9390A	Lever, Tang switch type		12
○	SHRG9410A	Lever, Push switch type		70
○	SHRG9400A	Case, Tang switch type		12
○	SHRG9420A	Case, Push switch type		70
		INSTRUCTION BOOK		
○	SQFG1110	Instruction Book (EN, ES, ED, EL)		1
○	SQFG1180	Instruction Book (EW, EF, EP, EH, EB, EI, EG, EK)		1
○	SQFG1160	Instruction Book (X, XX, XS, XT, XR, XL, XV)		1

PACKING


❶
❷
❻
❸
❹
❼
❺
Instruction Book
㉑
⑲
⑳
❽
❾
⑫
⑩
⑪
⑬
㉒
⑰
⑭
⑯
⑮
⑱

PACKING PARTS LIST

Ref. No.		Part No.	Description	Per/ Set
			SX-E22	
○		SPNGE22EA	Packing Parts Ass'y	1
○	1	SPNG1394A	Carton Box	(1)
○	2	SPNG5289A	Pad, Rear Right Side	(1)
○	3	SPNG5287A	Pad, Front Right Side	(1)
○	4	SPNG5288A	Pad, Rear Left Side	(1)
○	5	SPNG5286A	Pad, Front Left Side	(1)
○	6	SPNG1399A	Top Case	(1)
○	7	SPNG1403A	Packing, Music Ruck	(1)
	8	SPHG310A	Polyethlene Bag	(1)
○	9	SPNG5294A	Pad, Cabinet	(2)
○	10	SPNG3038A	Prop	(4)
○	11	SPNG1404A	Packing, Side Panel	(1)
○	12	SPNG5293A	Pad, Rear Right Side	(1)
○	13	SPNG5291A	Pad, Front Right Side	(1)
○	14	SPNG5292A	Pad, Rear Left Side	(1)
○	15	SPNG5290A	Pad, Front Left Side	(1)
○	16	SPNG1400A	Bottom Case	(1)
○	17	SPNG3036A	Frame	(1)
	18	SZTJPB19HC	Band	(2)
	19	SPNG5161A	Spacer, Top Cover	2
	21	SPHG280A	Protection Cover	1
○	22	SPEG1073A	Packing Parts Ass'y, Bench	1
○	22	SPEG1073B	Packing Parts Ass'y, Bench (MC)	1
			SX-E22L	
○		SPNGE22LEA	Packing Parts Ass'y	1
○	1	SPNG1395A	Carton Box	(1)
○	2	SPNG5281A	Pad, Rear Right Side	(1)
○	3	SPNG5279A	Pad, Front Right Side	(1)
○	4	SPNG5280A	Pad, Rear Left Side	(1)
○	5	SPNG5278A	Pad, Front Left Side	(1)
○	6	SPNG1401A	Top Case	(1)
○	7	SPNG1403A	Packing, Music Ruck	(1)
	8	SPHG310A	Polyethlene Bag	(1)
	9	SPNG5135A	Pad, Cabinet	(2)
	10	SPNG3033A	Prop	(4)
○	11	SPNG1406A	Packing, Side Panel	(1)
○	12	SPNG5285A	Pad, Rear Right Side	(1)
○	13	SPNG5283A	Pad, Front Right Side	(1)
○	14	SPNG5284A	Pad, Rear Left Side	(1)
○	15	SPNG5282A	Pad, Front Left Side	(1)
○	16	SPNG1402A	Bottom Case	(1)
○	17	SPNG3037A	Frame	(1)
	18	SZTJPB19HC	Band	(2)
	20	SPNG1386B	Keyboard Cover	1
	21	SPHG280A	Protection Cover	1
○	22	SPEG1073A	Packing Parts Ass'y, Bench	1

MEMO

Printed in Japan
83073000 Ⓗ T.T.